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OF THE

PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY, HARVARD UNIVERSITY.

VOL. I.—Nos. 4, 5.

RESEARCHES IN THE ULOA VALLEY, HONDURAS.

CAVERNS OF COPAN, HONDURAS.

REPORT ON EXPLORATIONS BY THE MUSEUM, 1896–97.

BY

GEORGE BYRON GORDON.

CAMBRIDGE:

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EDITORIAL NOTE.

THESE two memoirs, issued under one cover, contain an account of the explorations in Honduras by the Peabody Museum in the years 1896 and 1897. During these years the work at the Ruins of Copan was suspended, owing to the unfortunate position taken by the present government of Honduras in relation to the edict granted to the Museum by the former government. Mr. Gordon has therefore turned his attention to other localities in that region, and has been so fortunate as to find much of interest and importance relating to the antiquities of the country.

The Uloa valley, as shown by Mr. Gordon's researches, was at one time well populated, but was not, at least for any length of time, occupied by the people whose ruined buildings of stone are found on various sites from the Copan valley and Guatemala to Yucatan and southern Mexico. That the Uloa valley was a region visited by several distinct peoples in ancient times seems to be shown by the mixture of cultures, as represented by the pottery and other objects found in the great deposits of refuse exposed along the banks of the river. This commingling of cultures, indicative of the various peoples who have occupied this rich valley of the Uloa, is worthy of an extended research, to which this report by Mr. Gordon opens the way.

The stone covered mounds, discovered by Mr. Gordon, comprise a group similar to others that have been referred to by travellers in the region of the headwaters of the Uloa. These mounds should be thoroughly explored, for it seems probable that an extended research would bring to light something of importance in relation to the people who built them. The one rude sculpture of stone discovered by Mr. Gordon and figured in his report, certainly has a closer resemblance to the rude sculptures from Nicaragua than to the elaborately sculptured monoliths of Copan.

Mr. Gordon's explorations in the caves on the hillsides of the Copan valley do not give evidence of extreme antiquity of man in that region; although the caves were undoubtedly used by man many centuries ago. Here again the culture of the people, as indicated by the few objects found

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in the caves, is different from that of the builders of the ancient city of Copan not many miles away, unless the pottery vessels were made for special rites connected with the caves.

All the illustrations in the two memoirs are from drawings by Mr. Gordon or reproductions of his photographs. The specimens figured or specially alluded to in the report form only a small portion of the collection made by Mr. Gordon. The entire collection is arranged in the Museum, and is open to all students.

As in former years, the expense of these explorations and of the publication of these memoirs has been met by the contributions of generous patrons of American research. Mr. Charles P. Bowditch and the Honorable Stephen Salisbury have shown a special and substantial interest in the Central American explorations. To Mr. Bowditch I am personally indebted for his unceasing devotion to this research, and for his personal supervision of the many details involved in carrying it on.

F. W. PUTNAM,
Curator of the Museum.

HARVARD UNIVERSITY, CAMBRIDGE,
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RESEARCHES IN THE ULOA VALLEY.

In October, 1894, I arrived at San Pedro Sula, on my way from Puerto Cortez to Tegucigalpa in the Republic of Honduras. The rains which had fallen heavily for some weeks still continued, the streams were swollen, and the condition of the roads was discouraging, — a state of affairs that made travelling extremely difficult. It was during the delay caused by the difficulty of obtaining animals for such a journey that I first received intelligence of prehistoric remains on the Uloa. A resident of the town showed me a specimen of painted pottery which resembled specimens from Copan already familiar to me. The owner of this specimen informed me that it was brought to him from the Uloa River by an Indian who claimed to have found it on the bank of the stream where it had been washed out during a flood. The locality where it was found was given as *Playa de los Muertos*, or Shore of the Dead, — a place that would seem to have received its name from circumstances connected with the buried relics of a former population, which are found in this as well as in other localities along the course of the river. It is probable that when the name was first applied, it was common to see human bones as well as pieces of pottery unearthed by the annual floods, which tear away the banks and sometimes change the course of the river for miles. Even at the present day an occasional skull or fragment of bone is exposed by the same cause.

Before proceeding on my journey I rode from San Pedro to Playa de los Muertos, a distance of about twenty-five miles. The way lay over a level country consisting largely of deep bottom lands, very rich and covered with luxuriant vegetation. On arriving at the place I found that the river, overflowing its bounds, had partly inundated the site of the little native village situated upon its bank, driving the inhabitants from their flimsy huts of poles and thatch. It was evident that further investigations would have to be postponed till a different season.

The explorations which form the subject of this report were carried on in May and June, 1896, and from March till June, 1897. These months being in the dry season, the river was then at its lowest, and afforded the best opportunity for making the investigations.

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The two rivers, Uloa and Chemilicon, draining separate mountain systems in the interior, converge as they approach the coast, and, traversing the broad plain which forms their common valley, empty into the Gulf of Honduras at points not more than eight miles apart. At one time, perhaps not very remote, when their respective volumes of water were much greater than now, the two rivers became united long before they reached the coast, and formed a broad stream whose waters were spread over a great part of the region that lies between the present water-courses. Then, when the volume of water decreased, owing to climatic changes dependent on variations of geological conditions or other causes,* the point of confluence advanced gradually towards the coast until at last the two streams reached the sea by independent courses and by different mouths. The waters of the Uloa and its tributaries, which form the larger stream, confined themselves to the east of the valley, and the Chemilicon became confined to the west. It is not probable, however, that their separate existence when once established remained constant. Subsequent variations and temporary changes in the conditions governing the amount of discharge caused their swollen currents to reunite at different periods. Even at a time so recent as to be within the memory of the present inhabitants, owing to a sudden increase in their respective volumes, the two streams became united for a short time near their mouths. In times more remote this reunion would have been much more extensive, and would have involved the flooding of a great part of the valley and the destruction of any human society that may have been developed on its productive soil. It will be well to have these considerations in view when we come to examine the actual conditions underlying the superficial aspect of this region to-day.

The whole valley is covered with an almost unbroken forest, and there is not to be found above the surface more than very insignificant vestiges of a former population; nor is there in its whole extent a town or a village

* The changes here indicated are apparent from the conformation of the valley and the continuous deep river deposits from the east of the Uloa to the west of the Chemilicon. The interior of the country furnishes abundant evidence of similar changes uniform in character with the drying-up process, which according to numerous observations has been going on over the land surface of the earth through later geological and historical time. This evidence of a diminution in the amount of water standing and running in the interior of Central America, although not so marked as in many parts of the world, is nevertheless ample. The much broken Cordilleras are in many places intersected by deep cañons which could have been formed only by running streams of considerable volume, and which now contain water only for a short time and irregularly during the period of greatest precipitation. More striking are the signs of dried lakes. The wide depression known as the plain of Comayagua was at one time occupied by a lake whose boundaries are marked by ancient terraces and shorelines, and whose outlet was the Humuya, a branch of the Uloa. That there has been a perceptible change in the amount of flowing water in recent times would seem to be indicated by the presence in different localities of ancient village sites, marked by ruined houses and other structures of stone, upon the borders of what are now dried watercourses or channels containing water during a short part of the year only. Since there is at present no convenient water-supply for these long-abandoned communities, it is only reasonable to suppose that at the time when the sites were chosen the amount of precipitation was greater than it is now.

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or a single hut that does not stand upon the buried relics of what must have been a very extensive and flourishing community. One can scarcely dig a drain or excavate a fox's hole without coming upon some relic of former industry. At San Pedro, along the whole line of the railroad that runs for fifty miles through the valley, or wherever excavations have been made for any purpose, the experience has been the same. It is not possible to excavate the whole valley, but where the rivers have cut their channels through the old alluvial beds, and particularly in the terraces of the Uloa, we have an opportunity of observing the conditions that have been described. In the lesser channel of the Chemilicon the same conditions pertain, but to a less extent.

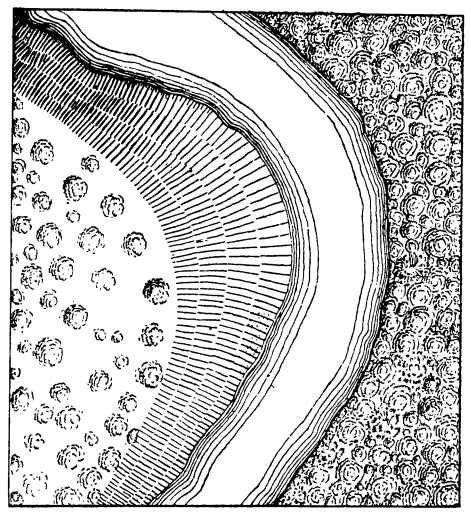

FIG. 1. — TYPICAL FORM OF RIVER BED.

Embarking at La Pimienta and passing down the Uloa in a canoe, the chief details that at first impress themselves on the spectator are as follows. The course of the river is rather crooked, and at each turn the bank opposing the direction of the current and receiving all its energy, is undergoing constant encroachments, which in flood times are considerable. Consequently this bank takes the form of a vertical cutting, presenting a cross section of unconsolidated strata of sand and clay about thirty feet in height and lined on top with dense masses of manaca palms and other trees.

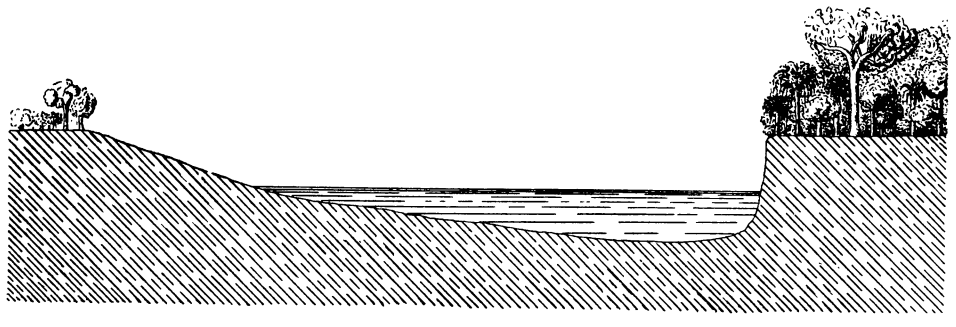

FIG. 2. — TYPICAL SECTION OF RIVER BED.

The opposite bank, which occupies the inside of the curve and is consequently receiving additional depositions from the river, takes the form of a sloping beach of sand and gravel, often attended with drifting sand and dunes. This is the typical condition, and serves to indicate the process that is going on (Figs. 1 and 2). These vertical banks, where the old alluvial

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strata are freshly exposed and well in view, present the continuous spectacle of broken pottery and fragments of bone from the surface of the water up to within a few feet of the top. In places these objects are very numerous for stretches of several hundred feet, then diminishing gradually and sometimes almost disappearing for miles. They are most numerous in streaks or strata at various levels, with intervals of several feet between in which they are scarcely noticeable or entirely absent, as appears to be the case sometimes. In order to gain further knowledge of the situation, it was necessary to select the localities that promised the best results, and excavate. Since the details of the work, the methods employed, and the conditions involved remained the same throughout, it will be well to give only a summary of the work, and such incidents connected with it as may be of interest or importance, before proceeding to bring together the results in their proper relations.

The inhabitants of this region are different in many respects from the natives of the mountainous districts in the interior. Their ethnological antecedents would be difficult to trace, but I am convinced that there is an infusion of Carib blood which in its later constitution involves a strong Negro element. The physical resemblance to the modern Carib of the coast is in some individuals very noticeable, and in many respects the disposition of these people resembles that of the Carib; their exclusiveness and aversion to dealings with strangers are marked Carib traits. Since the latter are averse to mixing with people of different blood from their own and have a strong attachment to the salt water, the present instance of departure from deep-rooted customs must have been brought about by refugees or outcasts. For the rest, the racial antecedents of the people who are met with in the village communities on the banks of the Uloa River are derived from the Xicaque Indian and the Spaniard.

From La Pimienta to the mouth of the river there are twenty or thirty of these villages varying in size from half a dozen to fifty or sixty huts, often completely hidden among the trees and rarely attended with any clearing or cultivated fields. The inhabitants follow the usual occupation of doing nothing. There is abundance of fish in the river, and the forest is full of game, but they seldom take the trouble of procuring either, preferring to subsist on green plantains alone. In respect of industry they certainly do not take after their Carib progenitors.

The village of Santana is situated in a bend of the river where it makes a large loop, affording long stretches of high vertical banks, and therefore offering a suitable field for excavation, since by passing under the banks in a canoe the most likely spots could readily be chosen. Here the three most important excavations were made.

After a clearing had been made on the margin of the bank at the point selected, an arbitrary stratum four or five feet in depth was removed

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over an area extending one hundred feet along the edge of the bank and an equal distance in the other direction. Then a second stratum of the same depth was removed, and so on down to the level of the water. In the first of these strata there were few objects. In an excavation at Playa de los Muertos the objects appeared to continue in increasing numbers, from their first appearance down to the level of the water; but it must be said that the conditions here were not so favorable for observation, as it rained almost continually while the work was in progress, and the sides of the excavation were constantly falling in. We will therefore proceed to a consideration of Excavations 2, 3, and 4.

In No. 2 the objects occurred in three principal layers, each about two feet thick. The first occurred at a depth of eight feet, the next at a depth of fifteen feet, the third at a depth of twenty-five feet. These layers were not clearly defined, however, and the intervals also contained objects, though in much smaller numbers. These objects did not differ in general character in the different layers, either in this excavation or in the others. They grew less numerous towards the bounds of the excavation, as indicated on the face of the bank, and almost disappeared in every direction; but not entirely, for no matter how far the excavation was carried something would be found at intervals. It will be understood that the site of each excavation and its dimensions were determined by indications on the face of the bank.

In No. 3 there were agian three principal layers, at depths of twelve, twenty, and twenty-five feet The last was in this case by far the most extensive of the three.

In No. 4 the objects occurred in four principal layers, at depths of six, twelve, eighteen, and twenty-six feet. In the case of the first of these layers the greater part of the objects occurred in a thickness of one and one-half feet. In the second they occurred principally in a range of three feet. The third was about the same as the first, and the fourth smaller.

In general there was an interval between the different layers in which scarcely any relics occurred, and it is also to be noted that the lower limit of each layer was better defined than the upper; that is to say, in going downwards the objects increased in numbers more gradually and ended more abruptly; but in no case could you say where the layer began or ended. It is impossible to say how far the relics continue below the bed of the river, but that they continue below the surface of lowest water is evident. In all cases the objects, which consisted chiefly of fragments of pottery, were distributed through, and so intimately associated with, the strata of sand and clay in which they were embedded that they had every appearance of having been laid down simultaneously with these strata. The stratifications were fairly well defined, and though somewhat uneven were continuous and horizontal.

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It was rarely that an entire object was discovered, and the fragments of those that were broken were sometimes scattered. Different fragments of the same vessel were often found several yards apart, while in a few instances nearly all the pieces of a shattered object were found within a radius of two or three feet, all being on the same or nearly the same level. Small fragments of bone were encountered regularly in the same levels with the other objects; and although there were no well-defined burials and nothing of the character of tombs, the fragments of bone, although their evidence is rather meagre, must be regarded as indicating burial-places in which the human remains have all but disappeared. The only point of special interest attaching to these remains is the filing of two front teeth, in a set found at a depth of twenty feet, in a manner similar to those found in the tombs at Copan. In Excavation 4 two skeletons much decomposed lay a few feet below the surface, but no objects were associated with them. In this instance there were several mounds scattered over the surface, and the burials are, I think, to be referred to these, which must have been of later origin than the remains embedded in the banks; for although nothing was found in these mounds themselves, the strata beneath them contained the usual objects, as already described.* At the points where the other excavations were made the surface was perfectly level, and without any indications of a former population. These are the main facts obtained in the excavations; their bearing will be discussed further on, after an examination of the material brought together.

One day I came upon a solitary Indian who lived by himself in the forest. He was held in great terror by the people on the river, being, as they said, a low savage and not a Christian. He was called Nicho, a contraction of Dionicio. After our first encounter I met him so frequently that I suspected he was putting himself in my way; but though he was a surly dog and somewhat irascible, he never showed any hostility toward me. Since it was notoriously his habit to shun his fellow-men, I wondered at this display of sociality. It was explained afterward when he told me that I was better than the people on the river, — a conclusion which indicates a singularly correct knowledge of character. It was not long before we became quite friendly, and as he knew the forest thoroughly I decided to

* These mounds are irregular in shape, and built of water-worn stones and earth. They vary in size from scarcely perceptible elevations a few feet in diameter to as much as thirty or forty feet broad and from four or five to twelve or fifteen feet in height. In this particular locality there may be fifty or sixty such mounds scattered over an area of two or three acres. Groups like this are found here and there over the entire valley. The word used by the Spanish-speaking natives of this region to describe these mounds is *calpulis*, the plural of the Nahuatl word signifying "clan;" and a modern village situated between the Uloa and the Chemilicon is called Los Calpulis on account of its proximity to a group of these mounds. The significance of the word as applied in this way is not apparent, but that Nahuatl words should have found their way to these parts after the conquest is to be expected, since in this very valley the march of Cortez and his Mexican allies to Honduras terminated in 1526.

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employ him as my guide. It was under his guidance that I found the only group of mounds of any especial interest that I saw in this vicinity. They are situated about six miles eastward from the river, near the base of the mountains. There are numerous mounds scattered over an area of about ten acres, but the most notable group occupies a much smaller space in the southeastern part of the area (Fig. 3). The southeastern extension of this group consists of a quadrangular enclosure surrounded by a ridge of rough stones raised to a height of about five feet. The eastern part of the enclosed

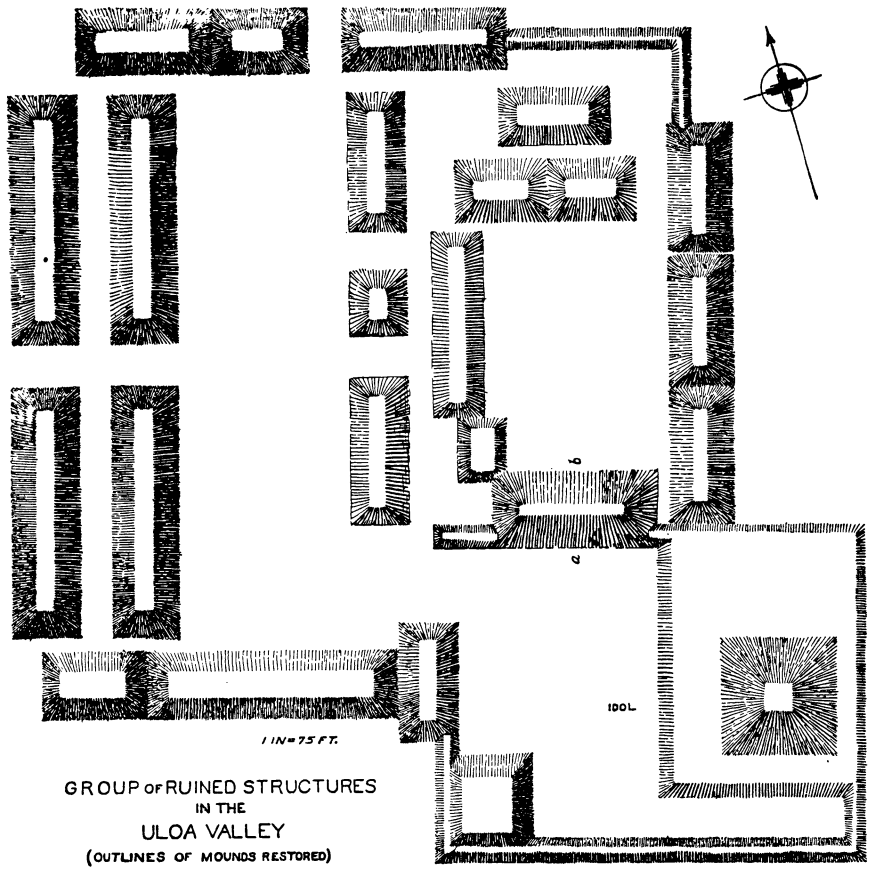

FIG. 3. — PLAN OF RUINS EAST OF THE ULOA RIVER.

area is elevated to the level of the surrounding ridge, and upon this elevation stands a square pyramidal mound, about forty feet in height, terminating in a rounded point. In front of the raised area, opposite the centre of the mound, is an idol, broken in three pieces. The lower part was standing when found, and the other two still retained evidence of the blows by which they had been broken off. A sketch of this idol in its present condition with parts replaced is shown on the next page. It stood about seven feet high, was sixteen inches in diameter, and was rudely carved from

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a hard igneous rock, almost black in color (Fig. 4). It would seem to have been the chief object of worship in the community. In fact I saw no other carving at all, and only one other stone in the form of a pillar. In the northwestern corner of the enclosure is another mound about ten feet in height, having a level area about fifty feet square on top; while in the eastern side occupying the place of the enclosing ridge is another mound one hundred and twenty feet in length, sixty feet in width at the base, and about thirty feet in height. An excavation (Plate XII., Fig. 3) was made through the centre of this mound (*a b*, plan), which resulted in nothing more interesting than a knowledge of its interior structure. A few very small fragments of rough pottery were indeed found, but their occurrence was probably accidental and they were of but small interest. In the interior of the mound was a core made of a hard homogeneous mass of red clay. This would seem to have been the original mound. On its top was a smooth floor or platform of hard burnt clay; fires had been built upon it, but the ashes had been swept clean from the hardened floor and lay in masses over the sloping sides of the mound. Afterward the whole had been covered with earth, and the mound, thus raised to nearly twice the original height, had been covered with rough stones (Fig. 5). An excavation was also made into the side of the large square mound, and its structure was found to be the same. At some distance north of the principal group of ruins is a smaller group consisting of a square enclosed by long mounds. In this square was a small mound not more than three feet high. In its centre was set a small plain pillar, a column of schistose rock formed by natural cleavage. It stood about four feet in height above the surface of the mound, while two feet of it were beneath. I had the entire mound removed, and dug beneath the column to the natural level, but found nothing. Other excavations were made in mounds of various shapes and sizes, in the hope of finding tombs, but none could be located.

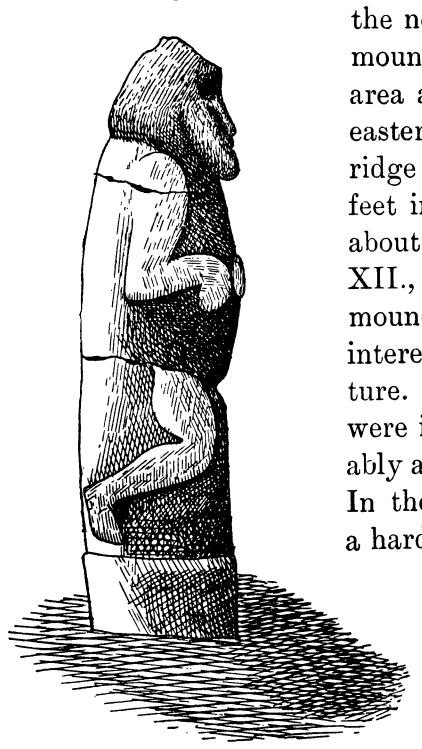

FIG. 4. — STONE IDOL.

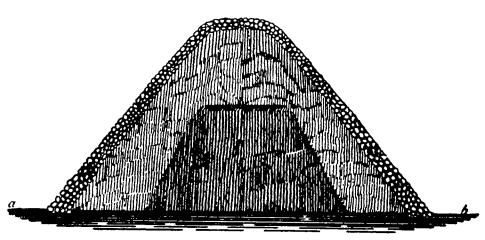

FIG. 5. — CROSS SECTION OF MOUND.
a b, plan.

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While clearing away the debris at the base of the carved idol, I found three rude beads, a broken pendant (Fig. 6), and some fragments of a small tablet, all of crystalline limestone. This stone is almost pure white, with streaks and touches of delicate green, owing to the presence of chrome muscovite, flakes of which are distributed through the limestone crystals, giving the mineral the appearance of certain varieties of jadeite.

During the three weeks which I spent in camp at these ruins, I made several excursions along the lower slopes of the mountains. The object of one of these journeys was to visit a wonderful enchanted pool in a deep ravine that Nicho was acquainted with. I had heard of this interesting place from others, but no one except Nicho had seen it, although all were familiar with its magic echoes. This ravine sometimes sends forth a loud melodious sound which may be heard many miles away and is regarded by the people of the region as an infallible sign that it is going to rain. In fact it is a regular weather bureau, with this peculiarity, that it is always reliable; for the sound is so modulated as to indicate by its pitch whether the coming storm is to be heavy or light. The amount of promised rain is in exact proportion to the volume of sound, and thus it proclaims to the accustomed ear with unerring precision the approach of a passing shower or heralds the terrific thunder-storm of the tropics; and this is no fiction, but a fact which any one may demonstrate for himself by going and listening to it. On account of these phenomena the place is called *La Quebrada Encantada*, The Enchanted Ravine.

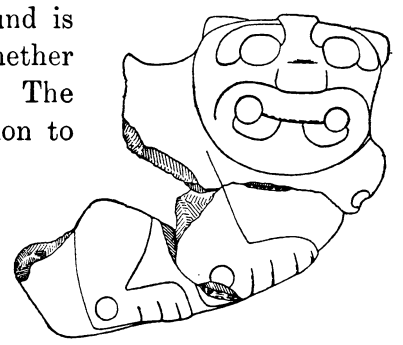

FIG. 6. — PORTION OF BROKEN ORNAMENT CARVED FROM CRYSTALLINE LIMESTONE. ½.

The account which I obtained from Nicho was not told in sequence as it is given here. Nicho was neither romantic nor communicative, and I had to draw his story from him almost word for word by dint of much cross-questioning and systematic prompting. But granting, if necessary, that my suggestive solicitations may have stimulated his imagination rather than his memory, there can be no doubt that what he had to say indicates the general drift of some old tradition of which some scattered remnants still survived in his unreceptive and unmindful brain.

It was while cutting our way through the tangled undergrowth in the forest in search of the Quebrada Encantada and its mysterious pool, that I learned in the manner I have described the secret of its strange behavior. According to Nicho, this pool is the abode of a golden dragon. In former times, before the Spaniards came, it was lined with golden pebbles and the sands at its margin were grains of gold, and it was the custom of the golden dragon to rise occasionally to the margins of the pool and receive the offerings

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that were made to him by the people. If they wanted rain they would bring their offerings and lay them on the golden sand beside the pool, or cast them on the water; then, while all the people chanted a prayer, the dragon would rise from the cave where he dwelt in the depths of the pool, and take the good things that were offered him, and there never was a drought or a famine in the land. Then, when the Spaniards came and the people were driven from their homes, the golden pebbles and grains of gold disappeared, and the golden dragon, retiring into the uttermost corner of his watery cavern, withdrew forever from the upper world. There he still lives and, as formerly, controls the clouds and the winds that bring the rain. The spirits of the Indians, too, still hold their meetings of an occasional evening by their accustomed pool, now lost in the solitude of the forest, and it is the sound of their chanting that makes the voice of the ravine. The monkey hears it and returns an answering cry, the jaguar hears it and retires to the shelter of his den, and the lazy half-caste native, propelling his clumsy canoe along the river, pauses for a moment as it strikes his ear, then, muttering the name of his patron saint, swears that a storm is near, and rouses himself to more telling exertions.

When we had made our way through the forest for a distance of about two miles from camp, we arrived at a deep dark ravine, into which we descended, holding on to roots of trees and projecting masses of dark gray rock. In the bottom there was a stream up which we continued to journey with much difficulty for a distance of half a mile or more. We seemed to be entering the very heart of the mountains whose dark masses towered above us. As we proceeded, the ravine grew narrower, the sides higher and more precipitous, and we had to increase our exertions as the way became steeper and the masses of rock over which we had to climb higher and more dangerous. At last we arrived at our destination, and further progress was impossible. The first thing that attracted attention was a cataract that came tumbling down the side of the mountain, and after a final leap of fifty feet was precipitated into a pool some forty feet in diameter and very deep. This pool is surrounded by vertical masses of hard fine-grained rock, except at the outlet in front. At the foot of the fall the water is thrown into violent commotion and forms a seething whirlpool, while towards the margins there is scarcely a ripple, and so clear is the water that I could count pebbles at the bottom fifteen or twenty feet below the surface.

The refreshing coolness of the place was a pleasant contrast to the closeness of the forest and the heating exertions of the journey, while its wild romantic charm was in keeping with its legendary associations, and made it a fitting place for the performance of sacred rites and mysteries. It is just such spots that man in a state of nature endows with supernatural gifts, or associates with his ideas of power and wisdom. Paying divine honors to that which inspires in him feelings of admiration and awe, he

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identifies it with the spirit whom he worships as the Author of all things, or with some lesser divinity who represents one of his attributes as ruler over the powers of nature. In other lands this spot would have been a favorite haunt of naiads, or a rendezvous for the alluring nixies; but the savage mind dwells darkly on the grim and terrible in nature, and so to the sombre imagination of the Indian it was a dragon who kept guard over the sacred pool and dwelt in its enchanted depths.

Everything about the place seemed to confirm the legend, even to the disappearance of the gold; and the veracity of Nicho as a custodian of traditionary lore remained unimpeached. The pool had undoubtedly been the scene of some sort of transactions in ancient times. A row of huge bowlders had been placed in a line across its outlet several yards below its margin, and a shelving ledge of rock which projected over the deepest part was worn smooth on its upper surface; but I saw no carvings or symbols of any kind upon the rocks. Curiously enough, however, while digging in the sand and gravel about the edges of the pool, I unearthed a single fragment of painted pottery, with the head of a serpent or dragon clearly outlined in black upon its surface (Fig. 7). The fragment is only three inches across, and the body of the dragon is broken away. I showed this symbol to Nicho, and tried to stimulate his memory by it, but he remained indifferent, and merely shook his head at all my efforts.

FIG. 7. — FRAGMENT OF PAINTED POTTERY VESSEL WITH SERPENT'S HEAD. $\frac{2}{3}$.

It should be added that the sound heard before rain is to be attributed to the waterfall. Ordinarily its sound may be distinguished half a mile away, but before a storm it may be heard for many miles along the river. The phenomenon, although it needs explanation, is in keeping with the well-known habits of running streams and waterfalls. A photograph of the place is reproduced on Plate XII., Fig. 2.

The conditions under which work could be carried on in the thick of the forest were not altogether pleasant. The air was close and hot, and the insects, which at first were scarcely noticeable, gathered in swarms about the scene of our operations. During the day there was no respite from the persecution of flies, and particularly of a small black gnat that came in clouds, assailed every bit of exposed skin, and entered the eyes, nostrils, and mouth; then there was a large yellow fly, with a very painful sting, and another as big as a hornet which attacked the horses in such numbers and with such ferocity that I had to send them to a small clearing on the other side of the river. At night the mosquitoes made it impossible to sleep without the protection of a net, and even then they managed to make their attacks through

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the bottom of a hammock of stout sail-cloth. Of course there were snakes, scorpions, tarantulas, and other minor details of life in a tropical forest. It was a forest abounding in wild animals. The most conspicuous of these was a little white-faced monkey with a habit of chattering and an inquisitive disposition, who sometimes surrounded us in numbers and watched our movements very critically from the branches of the palm-trees. There was also a large black baboon who never came near, but seemed to confine himself to the tops of the highest trees. These latter paid no attention to our doings, but sometimes made the night hideous with their bellowing. Then there were deer, tapir, peccary, and jaguar, not to mention many smaller animals such as sloths and ant-eaters. Alarms were frequent in the encampment, where the workmen slept on the ground, as some wild animal came prowling among them in the dead of night; but we never had an actual attack.

About the middle of April, on the arrival of Holy Week, a festival observed in Central America with the strictest attention to that part of the teaching which demands abstinence from any sober or industrious occupation, I broke up camp at the ruins. Disappointed at the result obtained from more than two weeks' labor, I concluded to abandon the mounds and to continue excavations on the river banks when the period of religious abstinence referred to had passed, and my men had time to recover sufficiently from their pious dissipations to begin earning silver with which to celebrate the next similar occasion.

All these excavations involved the same set of conditions, and afforded similar results. Before leaving the region I made a journey to the mouth of the river, making excursions into the forest at intervals, and where it was possible marching through it and joining the canoes at some point farther down. Owing to the density of the forest, it would be difficult to make anything like a thorough exploration of the extensive region lying between the mountains that form the barrier to the almost unknown country of Yoro on the east and the highlands of Santa Barbara on the west, a tract corresponding to the common bottom lands of the Uloa and Chemilicon rivers. In the lower reaches of the Uloa I observed the same signs of buried relics attended by the same phenomena as in the localities where the excavations were made, but less frequently, and in diminishing quantity towards the mouth. Proceeding up the river beyond La Pimienta, I occasionally found objects similar to those taken from the excavations in the vicinity of Playa Muerto and Santana. These signs continued up even to where the river occupies a narrow gorge among the mountains. Wherever an old deposit occurred along the course of this stream, it was almost sure to contain fragments of pottery. Just below La Pimienta the Uloa receives the waters of another stream formed by the confluence of Rio Blanco — the outlet of Lake Yohoa — with the combined waters of the Sulaco and the Humuya. In each of these streams I found fragments of pottery sticking

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in the banks, but only in the last named, which is the largest, were they at all noticeable, and even in that were not very numerous. The Humuya drains the plain of Comayagua in the interior of the country, but I did not attempt to follow its course so far. I followed for several miles the course of the Sulaco River, which drains the mountains to the east, but only near its confluence were the conditions favorable to the preservation of relics; for the rest of its course the stream occupies a rocky bed among the mountains. As for Rio Blanco, long before one reaches the lake, the stream becomes a mountain torrent. The Uloa may be navigated by a canoe as far up as Santa Barbara, a distance of some fifty miles above La Pimienta. In the Rio Blanco a canoe can proceed only a few miles, and cannot pass above the junction of the Sulaco and the Humuya, about fifteen miles above the mouth of the Rio Blanco.

There appeared to be a good many fish in the rivers, and I had plenty of hooks, but I could never get them to bite. This unskilfulness on the part of the fish may be attributed to the fact that they are not accustomed to be taken in that way. The Indian method of fishing is entirely different. We put it into successful practice, under Nicho's supervision, while we camped on one of the smaller streams. A certain vine called by the natives *barbasco* grows plentifully along these water-courses. It averages in thickness that of a man's thumb, and has a tough woody texture. When the Indian goes fishing, he selects a quantity of this vine, cuts it into suitable lengths, and pounds it with a club on any convenient stone that comes to the surface of the water. A yellowish sap is thus extracted, which mingles with the stream and kills every fish for a considerable distance along its course. A net stretched at some convenient point lower down collects them as they float along. As an article of food the fish does not seem to be injured in the least by the poison. I found them of a good quality and agreeable flavor. Nor is the water apparently made the less suitable for drinking by the infusion which proves so deadly to the fish. It would seem to be the peculiar property of the juice of the barbasco that it is poisonous to fish but harmless to other animals.

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OBJECTS FROM THE EXCAVATIONS.

THE collection of objects found in the excavations includes a great variety of forms, and nearly all are of clay. These objects may be grouped as follows, in the order of numerical importance: —

1. Pottery vessels.
2. Terra cotta whistles or musical instruments.
3. Terra cotta figures and masks (hollow).
4. Terra cotta figures or statuettes (solid).
5. Terra cotta stamps or seals.
6. Stone vases and ornaments.

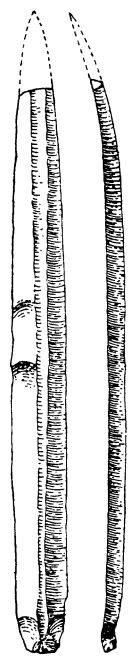

FIG. 8. — OBSIDIAN FLAKE-KNIFE. $\frac{2}{3}$.

Not included in these groups are a few fragments of obsidian, one fine obsidian flake knife five inches in length (Fig. 8), a small obsidian chisel, a green stone chisel (Fig. 9), two broken objects of stone (Fig. 10) such as are found throughout Central America and Mexico and supposed to have been attached to handles and used for beating bark cloth, one metatl, or rubbing stone with the hand piece, a conch shell prepared for blowing, a few perforated shells, and a number of objects made of clay, that are not easily classified or are of an uncertain character.

The first group, that of pottery vessels, is far the largest, although of the number represented comparatively few are entire. They embrace a great variety of forms, and represent a very considerable range of character, even tending to distinct and well-defined types. In artistic quality they range from the heavy coarse ware of common utility to decorative vases representing the highest development of the ceramic art of America. Nearly all of these finer articles are represented by fragments only. In a few cases a sufficient number of the pieces of a specimen were recovered to furnish the entire decorative design, but in the vast majority of cases only a small portion of the decoration is preserved. Not only these more delicate articles, but also the larger, heavier and coarser, were in most cases reduced to fragments. Most of the entire specimens belong to an intermediate and less interesting class, which by reason of their moderate size, their shape and strength, escaped with little injury through whatever vicissitudes they may have passed.

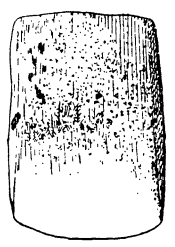

FIG. 9. — GREEN STONE CELT. $\frac{2}{3}$

For convenience of description the pottery vessels, in so far as they are well enough represented to be classified, are here divided into five groups, designated by the first letters of the alphabet: —

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A. Pottery of a high artistic quality, corresponding to varieties common to all regions subject to the influence of the ancient Maya civilization, and chiefly represented by specimens from Copan and Northern Guatemala. The

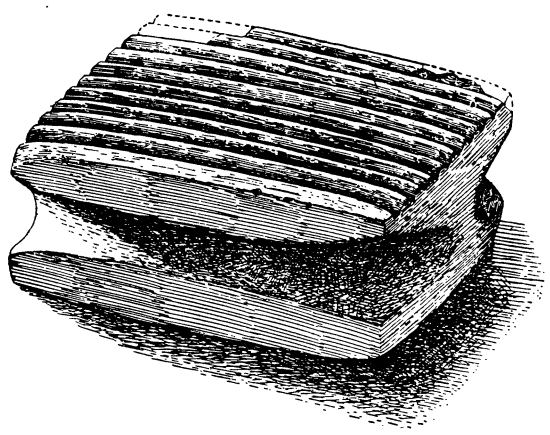

FIG. 10. — IMPLEMENT USED IN THE MANUFACTURE OF BARK CLOTH. ⅔.

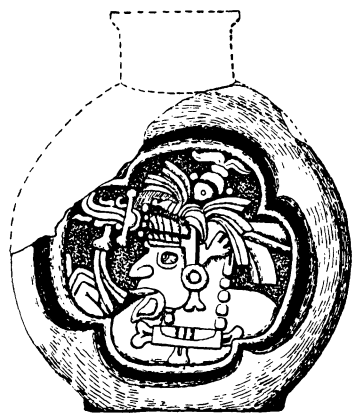

FIG. 11. — SMALL POTTERY VESSEL WITH DESIGN CAST ON OPPOSITE SIDES. ⅔.

greater part of this pottery is decorated in colors, which in many instances retain their brilliancy. Other varieties have the decorative designs either incised or stamped on the surface. One specimen of the latter sort requires

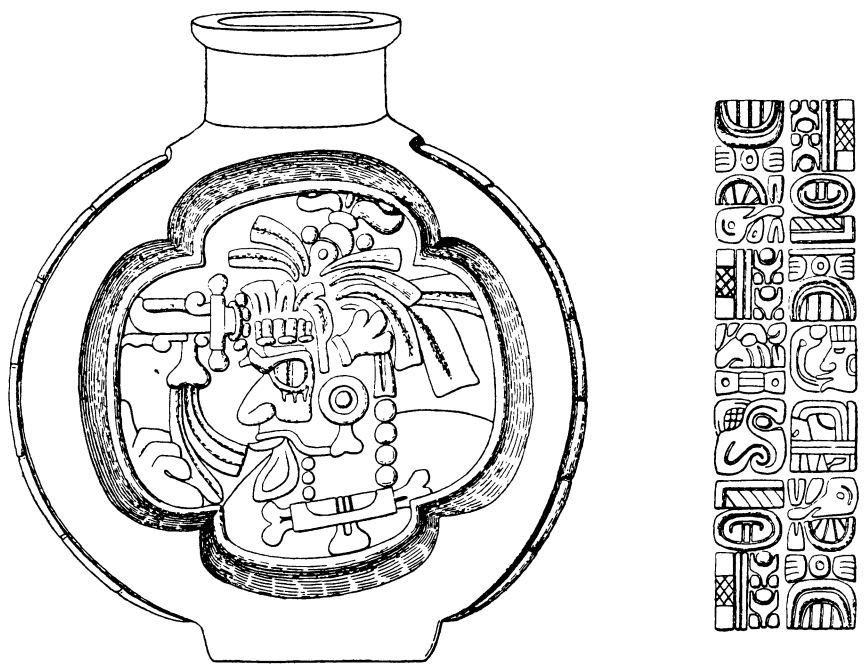

FIG. 12. — POTTERY VESSEL FROM GUATEMALA. ⅔.

special mention, owing to its relations with specimens from other localities. It is part of a small flask-shaped vessel, made of a fine clay, light gray in color and unpainted (Fig. 11). On either of the flat sides is a design in

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relief. The two sides are identical, and are apparently made from the same mould or moulds taken from the same original. The edges are plain. In Guatemala City I saw in private hands a similar specimen said to have come from the Alta Vera Paz region of Guatemala. The drawing (Fig. 12) is made from a cast of the original. The same figure adorns the two flat sides, and is the same as that on the specimen from the Uloa River. On each of the curved edges of this specimen is a double row of hieroglyphics, also in

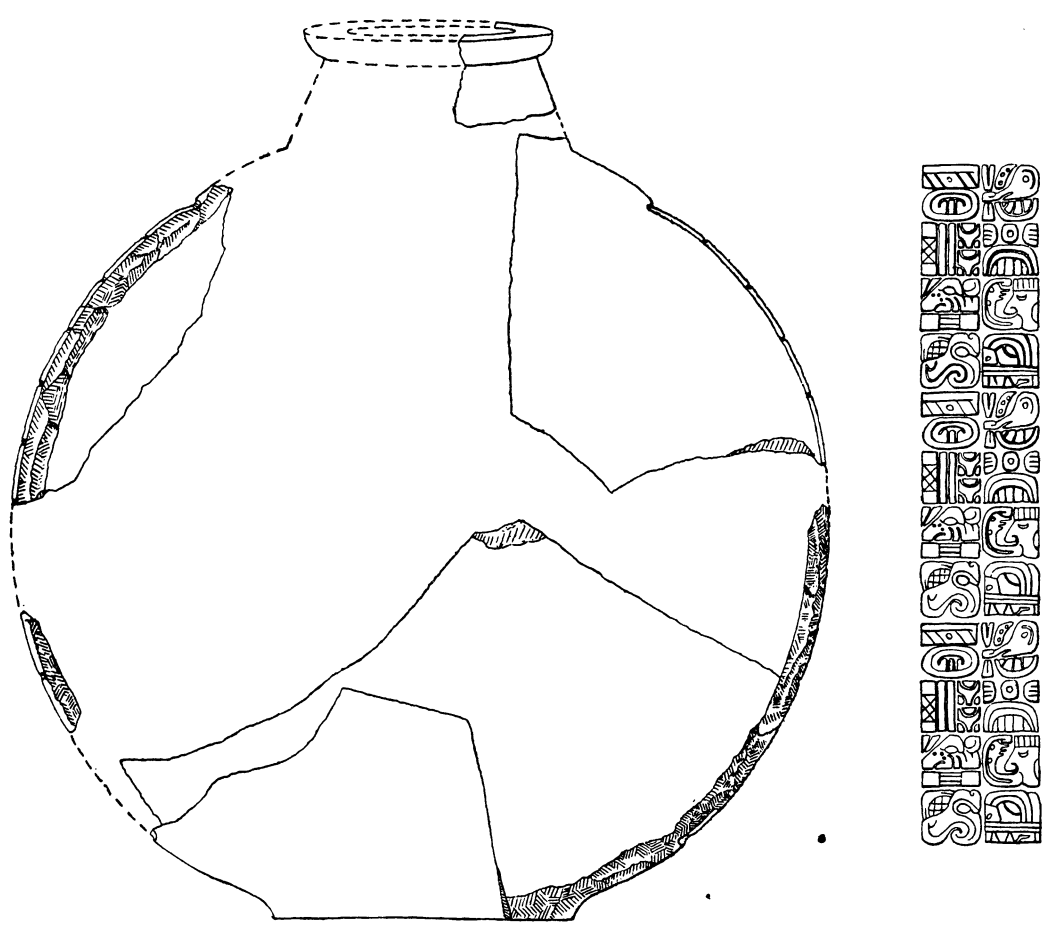

FIG. 13. — POTTERY VESSEL FROM COPAN. $\frac{2}{3}$.

relief and identical on both edges. The design on the two flat sides, as well as that on the two edges, must either have been made from the same mould or have been cast in moulds made from the same original. There are in the Peabody Museum fragments of another similar specimen from Copan. It is larger than either of the others, though scarcely thicker than the one just described. The flat sides are plain, while a hieroglyphic inscription in relief is repeated on either of the curved edges (Fig. 13). It will be seen

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that the characters in the inscription are the same as those in the inscription on the specimen from Guatemala, but they are differently arranged. These three specimens are alike in the peculiar quality of the material, in color, in shape, and in finish, and would seem to have come originally from a common locality.

B. Pottery of a high artistic quality, closely resembling certain varieties belonging to group A, but possessing certain distinct and characteristic features, particularly a form of handles shaped like the head of some beast or bird.

C. Pottery distinct from other known varieties, and with group B constituting types that are apparently confined to the region here represented. The individual specimens of this group which are in general much larger than those of groups A and B, are decorated in colors, but less highly finished than the latter.

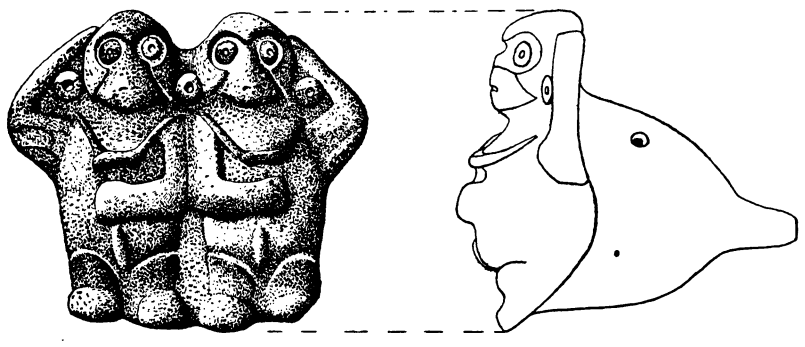

FIG. 14. — WHISTLE. $\frac{2}{3}$.

D. The specimens comprising this group are of an inferior grade to those of the foregoing groups, and but little decorated. They are characterized by a vertical spout, which appears to have been invariably equal in height to the mouth of the vessel. In most of the specimens shown this spout is broken off (Plate VII., *n*, *o*, *p*, *q*).

E. In this group are thrown a number of specimens, many of which are of a character common to every locality. Others, while bearing some resemblance to recognized types, are difficult to classify.

The whistles or musical instruments present a great variety of fanciful shapes. A common form consists of a hollow image of the human form or else a monkey, with an extension ending in a mouth-piece at the back. A very curious specimen represents a pair of twin monkeys joined together (Fig. 14). Another (Plate IX., *i*) represents a pair of frogs mating, and another (Plate IX., *j*) has the form of a large bullfrog. Each of the latter is a double whistle; that is to say, the air sent into it from the lungs divides into two currents corresponding to two separate cavities in the body of the frog.

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This combination is so arranged that the double vibrations produced give a very excellent imitation of the trill of a bullfrog. Other specimens have the forms of birds and various beasts. Most of the foregoing have two vents equal in size and equally distant from the mouth-piece. A different type has a simple opening for blowing and three vents (Plate IX., *o*, *p*, *q*). Another interesting specimen has the form of an animal of mythological character (Figs. 16, 17). It is unfortunately broken, which renders it incapable of being performed upon, but it would seem to have been an instrument of this character. The only opening is at the base of the animal's spine, and is about half an inch in diameter.

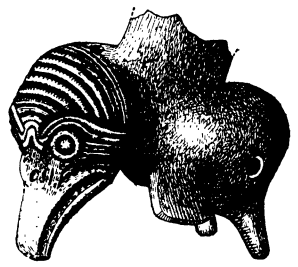

FIG. 15. — PORTION OF WHISTLE, OF TERRA-COTTA. ½.

FIG. 16. — POTTERY WHISTLE, OR MUSICAL INSTRUMENT. ¾.

Besides these, which are entire, or sufficiently complete for their character to be obvious, there are a number of fragments which may have been parts of similar instruments. The highly embellished human mask (Fig. 18), the animal's head (Fig. 19), and *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, on Plate VIII., are probably portions of whistles.

114

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In the third class are a number of images, somewhat resembling in a general way specimens from Oaxaca. The best example of this form of object is that shown on Plate IX., *n*. It is about nine inches in height, and represents a nursing mother. The youngster, seated cross-legged on her knee, wears a headpiece, necklace and

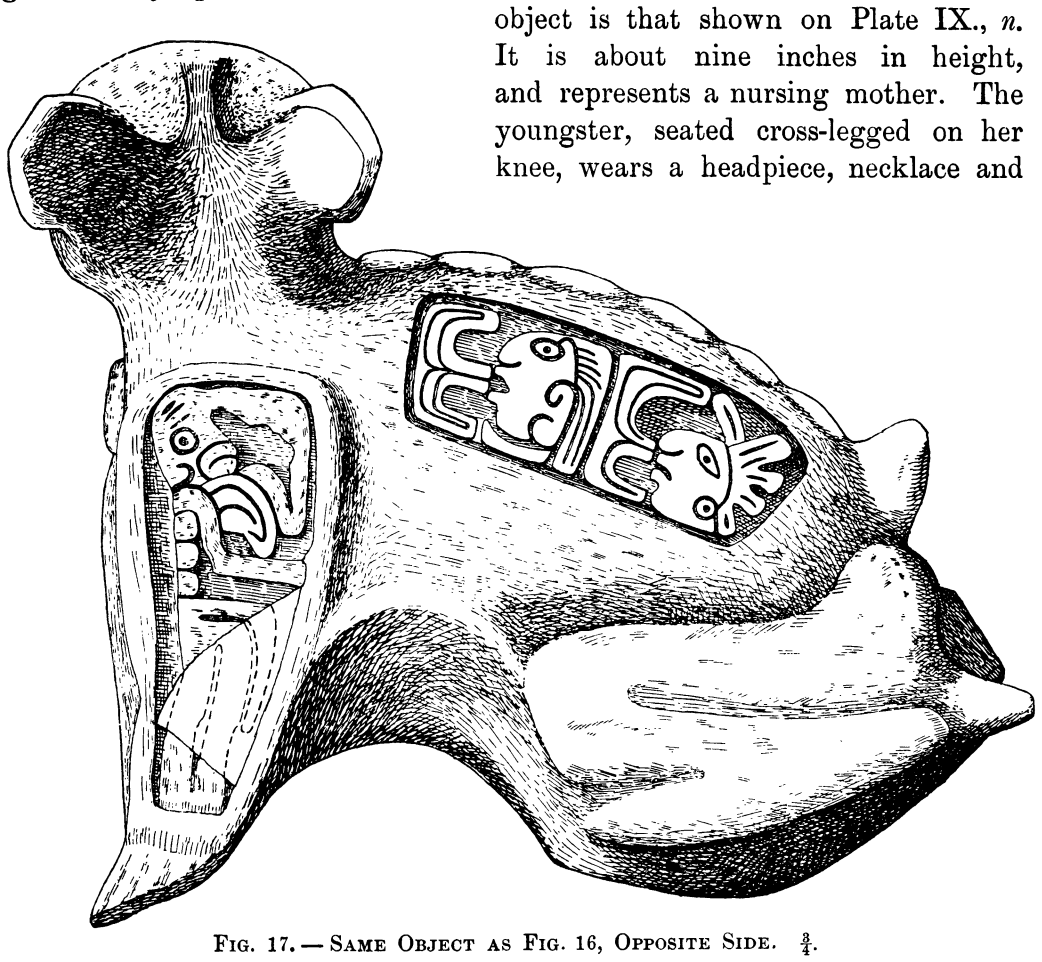

FIG. 17. — SAME OBJECT AS FIG. 16, OPPOSITE SIDE. $\frac{3}{4}$.

ear ornaments similar to those worn by the woman. The former wears also a girdle, and the latter a nose ornament and bracelets. The headdresses

FIG. 18. — TERRA-COTTA MASK, PROBABLY PORTION OF WHISTLE. $\frac{2}{3}$.

FIG. 19. — PORTION OF WHISTLE. $\frac{2}{3}$.

are painted blue and yellow, and the necklaces and ear ornaments, blue; the remainder of the figures are a light red. The entire object consists of a moderately thin shell of baked clay, the interior being hollow. There is

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a round opening about half an inch in diameter at the back of the head; the pupils of the eyes are represented by holes, and there is a pair of openings between the filed teeth. In Plate IX., *l* and *t*, are shown other examples of the same class of objects. In this class also is included a number of masks and similar objects, which, although resembling in material and workmanship those which embellish many of the whistles, do not appear to have belonged to any such articles (Plate VIII., *j* to *v*).

Three small masks of terra cotta (Plate XII., *a*, *b*, and *c*) have holes around the edges at the back, probably for fastening them to the dress, in the manner indicated by sculptures from Copan. They are of a very fine clay, very hard and polished, and may have been painted in such a way as to imitate carved stones.* All the objects included in classes two and three are cast. A few samples of the clay moulds used in their manufacture were found during the excavations.

Although many of these objects, and particularly the heads and masks, are modelled with much artistic skill, none can be said to be faithful copies of natural objects. Evidently the artist, not being bound to imitate nature, had free scope for the exercise of his fancy; still he doubtless adhered to prescribed forms and followed conventional rules within certain limits, for these masks and heads, of which those shown in Figs. 18 and 19 are typical examples, are probably fanciful representations of mythological characters.

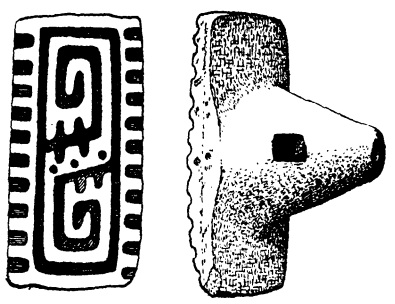

FIG. 20.— TERRA-COTTA STAMP AND WHISTLE.

Coming now to the fourth class of objects (Plate X.), we meet with a higher development of the artistic sense, and, in giving form and expression to certain conceptions, a much closer attention to nature as it is. A few specimens only were found, none being entire. The subject is the human figure, and the material is a fine light-colored clay. The modelling is fairly good. The figures are solid, well burnt, and very hard. The surface is polished, and in one case (*b*) there is evidence of a white enamel having been used. The female torso (Plate X., *g*) has a girdle about the waist; with this exception the figures are nude. They bear evidence of a very accurate perception of nature and a real ability to copy it correctly, indicating an artistic instinct that is capable of developing a high degree of realism.

Next in order is a number of clay seals or stamps (Plate XI.). They are flat plates of baked clay, having some conventional design in deep lines on one side and a short stub for a handle on the other. In some instances

* Mr. E. H. Thompson found in Yucatan clay beads on which remained traces of the green paint by which they had been made to look like jadeite. Memoirs Peabody Museum, No. 3.

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this handle is enlarged and converted into a whistle (Fig. 20). One of these seals is cylindrical, and has a hole through the centre (Fig. 21).

On page 33, Fig. 34, is shown a pair of small receptacles of burnt clay; they are divided sometimes into two and sometimes into three compartments, and resemble crucibles; but it cannot be said definitely what their use really was. On Plate XII., d, is shown a double paint-holder, which still contains a quantity of bright red pigment. The clay pipe, shown on page 41, Fig. 35,

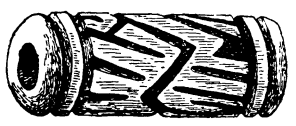

FIG. 21. — CYLINDRICAL STAMP. ⅔.

FIG. 22. — OBJECT OF BAKED CLAY, PROBABLY EAR ORNAMENT. ⅔.

is the only pipe from Honduras of which we have any record.* The curious little object shown in Fig. 22 is hard to describe. There is a twin specimen from Copan in the Museum, and I am of opinion that they are ear ornaments, and form another instance of imitation jewelry. The little projection at the smaller end would serve to keep the ornament in place. They are polished and very hard, and if painted might be made to look like stone. The nature of several clay objects, one of which is shown in Fig. 23, is not apparent; they resemble little marlin spikes more than anything else, but it is hard to see why such an instrument should be made of clay.

There remain to be mentioned only the objects carved from stone. Of these the most important are the two vases of calcite (Plate XII., *e*, *f*). Few specimens of this type have been reported. One figured in the *Journal de la Société des Américanistes de Paris, Numéro 1*, is reported to have been sent by a lady in Comayagua, Honduras, and to have been found in the river Humuya, which is a branch of the Uloa; but the exact locality is not stated. Another vessel of the same type is in the American Museum of Natural History in New York. It was in Squier's collection, and has been supposed to have come from Mexico, but without authority, as there is no reference to it in any of Squier's writings. In the absence of any reliable information concerning it, it ought to be referred to this Uloa region of Honduras, where similar specimens are known to have been found. A fifth specimen is in the possession of a resident of San Pedro Sula. It came from the same

FIG. 23. — IMPLEMENT OF BAKED CLAY. ⅔.

* This is the only pipe from Central America in the Museum, and the only one that has been found in that region, to my knowledge, except the remarkable stone pipe found by the late Mr. Sylvanus Miller in Salvador, and now in the Douglas collection in the American Museum of Natural History, New York.

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locality as the two figured on Plate XII., while a sixth has been sent to the Berlin Museum. All these specimens differ but little from each other in respect of form and ornament. That shown on Plate XII., e, is provided with a rim about three-quarters of an inch deep on which the vessel rests; some of the others mentioned have similar rims ornamented with open work. They are carved from calcite of a translucent variety, and exhibit considerable elegance of design which is in keeping with the beauty of the material. The walls are about one-eighth of an inch thick; the interiors are smooth and even, showing no tool marks. A grotesque head of conventional form projecting from either side serves for handles. A design of conventional pattern carved in low relief covers the outside surface, the chief device and leading feature of this decoration being a sort of grecque. The derivation of this form of ornament is uncertain and the notion unfamiliar, but the device is associated without doubt with some set of ideas connected with the particular office which these vases were intended to fulfil. There are some indications that point to a feathered monster as the original form from which the various features are derived, the grecques resulting from the transformation of the feathers, through conventional treatment. Besides the specimens mentioned, there are a number of fragments which, although their evidence is meagre enough, lead to the conviction that the practice of this branch of art was not uncommon. Moreover they represent vases differing in shape and ornament and exhibiting a high degree of skill in the manipulation of stone in this particular form. An object carved from calcite and representing a death's head is shown in Fig. 24. The back is hollow, and each side is pierced as if for fastening the ornament to the dress.

FIG. 24. — ORNAMENT CARVED FROM CALCITE. $\frac{2}{3}$.

FIG. 25. — DESIGN ON FRAGMENT OF TERRA COTTA FIGURE. $\frac{2}{3}$.

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PAINTED DECORATIONS ON POTTERY.

Among the vases from the Uloa River, those forming groups A and B exhibit the most elaborate color decorations. The colors used are black, yellow, red and white; although their composition is not known, they are unquestionably of mineral character and generally retain their brilliancy. The quality of the paste employed in these two groups is the same; it is made of a light red clay of a fine grade, and the ware is well burnt and very hard. Usually, before the colors were laid on, the vessel was treated with a thin orange or cream colored slip, and on this ground the various designs were drawn, and then before firing the surface was polished with a smooth stone or other implement, of which the marks are still visible in a number of instances. There is no uniformity in the relation of colors in the design to those of the slip; a light red or yellow wash seems to have been a favorite ground for the color decorations.

The conventional forms employed in the decorations on group A are more or less familiar to students of the Maya codices. In one part of the group, that which is made up of the bowl and cup forms, the decoration is arranged in bands and zones of varying width, encircling the vase from top to bottom. The designs here reproduced, illustrating these forms, are transferred to flat surfaces without breaking up the relations and with only such slight and inconsequent distortion as results from the changed form of the available space. Geometrical figures, *i. e.*, straight lines and circles, are drawn mechanically instead of in the bold freehand of the original; otherwise no departure is made from the character of the original drawing. With each design is given a sketch of the corresponding vase (Figs. 26 to 30 inclusive and *a*, Plate III.). In these drawings black represents black, red is represented by line shading, and the yellow or orange ground is left white. The design shown on Plate IV. is painted on a vase nine inches high and seven inches in diameter. The entire surface of the vase, which is made of a fine red clay, was covered before firing with a cream-colored slip, and the design drawn boldly on this in black and different shades of red. The space between the figures was then painted black. There is no sign that care was taken in the drawing. The decorator evidently worked rapidly and even carelessly. The drawing of the life figures is extremely crude, — a fact which is best seen in the treatment of the right hand of the personage holding a band or piece of ribbon, which the painter has made to look like a fork with three prongs. Around the rim of the vase is an ornament in the form of a kind of grecque, drawn in black. Below

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this come a narrow red band and a black band of the same width. A white or cream-colored band divides this upper portion of the design from the main motive. From the narrow black band are suspended twelve

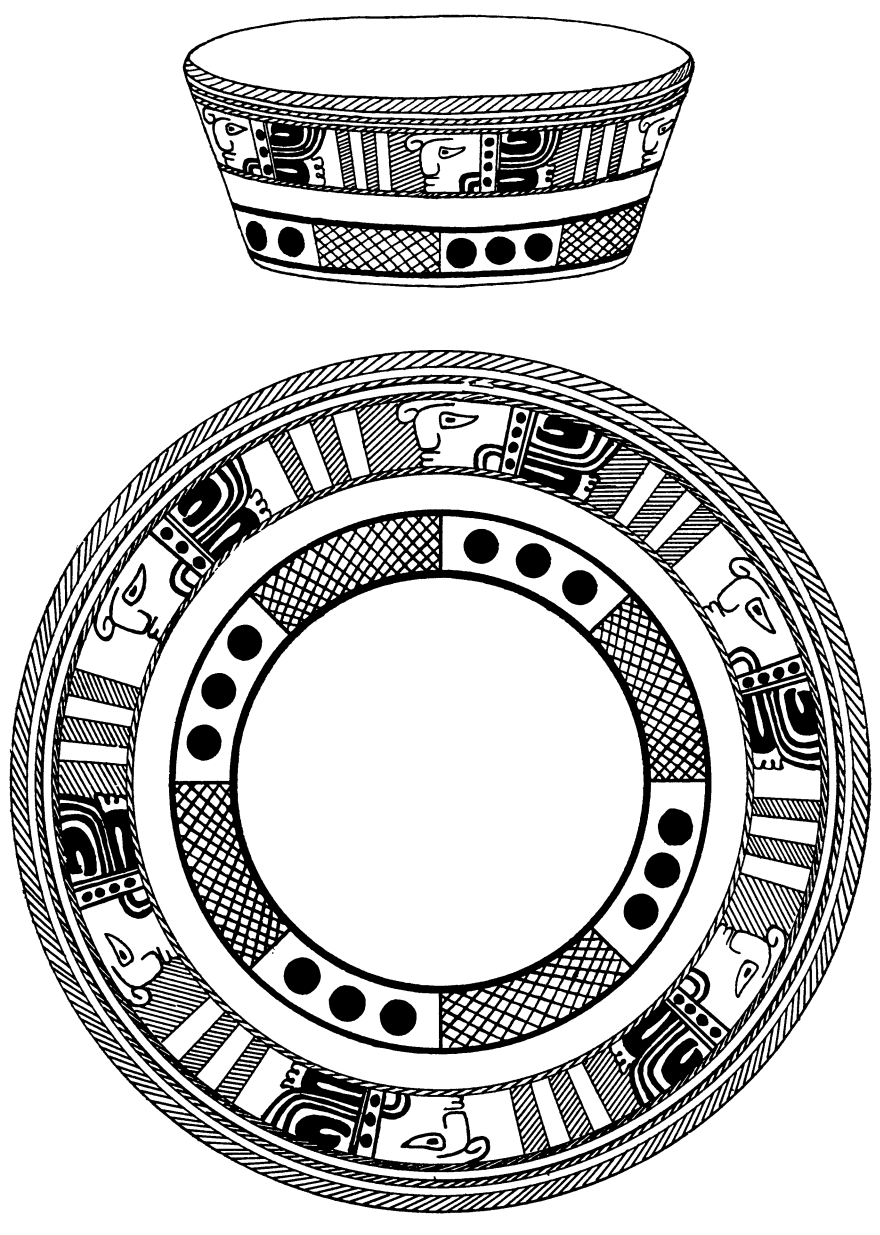

FIG. 26. — DESIGN PAINTED ON VASE. $\frac{2}{3}$.

objects, all alike and divided into groups of four by three looped devices depending from the same line. Each of these twelve objects is made up of four parts, — a shield; a cord (represented by the conventional cord symbol *kaam*) by which the shield is suspended; a device upon the shield corre-

120

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sponding to the sign for *Lamat*, one of the days of the Maya month; and a wing attached to the bottom of the shield. The lower part of the design consists of a group made up of the plumed serpent and a personage repre-

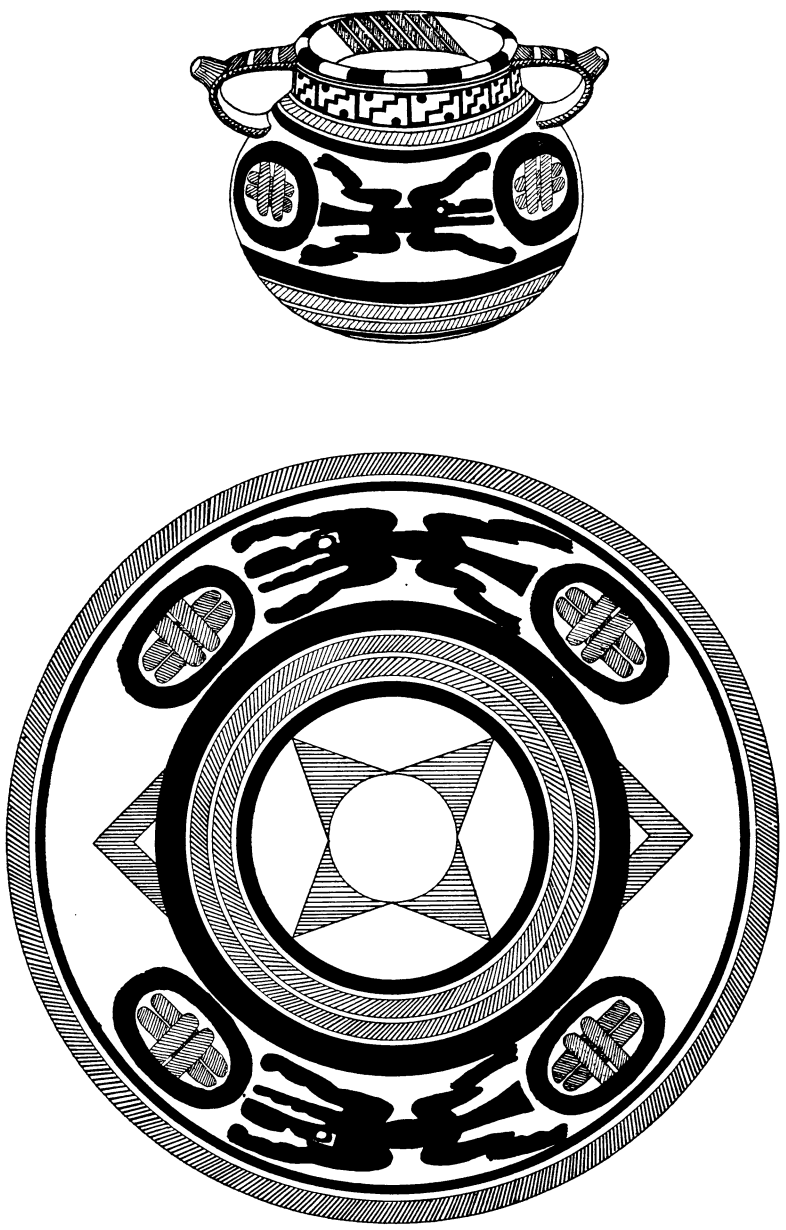

FIG. 27. — DESIGN PAINTED ON VASE. ½.

senting some divinity. The serpent's body is bent in the form of an arch, under which are placed two square crosses. This group is repeated once. On Plate V. is shown the design on another vase similar to that just described. The two designs are of much the same order. All the outer

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surface of the vase is covered with a rich, cream-colored slip. In the upper part of the design the space between the outlines of the figures is covered with a black paint, and the additional features of the figures are added in red. As in the former instance, the objects forming the chief feature of this part of the design are suspended from a black band followed by a white line. In this case there are fifteen suspended shields divided into groups of five by the looped figures. The shield with its device, which resembles an escutcheon charged with a bend sinister between two annulets,

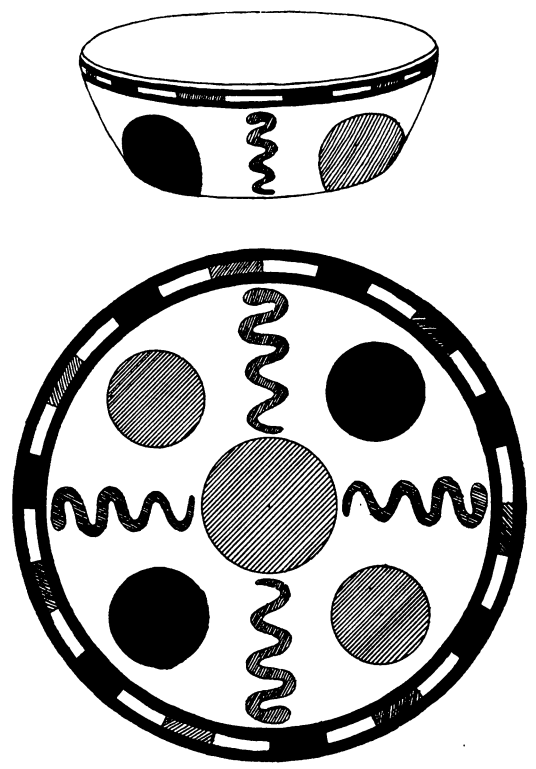

FIG. 28. — DESIGN PAINTED ON BOWL. ½.

is not in this case among the familiar symbols of Maya chronology. The lower part of the design, which represents a procession of three figures each holding a sun shield, is drawn in black and various shades of red upon the cream-colored surface.

Group B is less satisfactorily represented than group A, owing to the fragmentary character of the specimens, and no entire design can be made out. Among the figures employed, however, many can be recognized as derivations from Maya symbolism but exhibiting certain peculiarities in the manner of treatment. The vases of this group are further differentiated from those of group A by the introduction of new conventionalisms, the principal innovation being the handles representing animal features — the

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head of a bird or beast — with which the vases of this group seem invariably to have been provided. This feature is seen on the specimens illustrated on Plate I. Figs. 10, 12.

The red porous ware comprising group C differs from all known varieties in the character of its decoration as well as in form and workman-

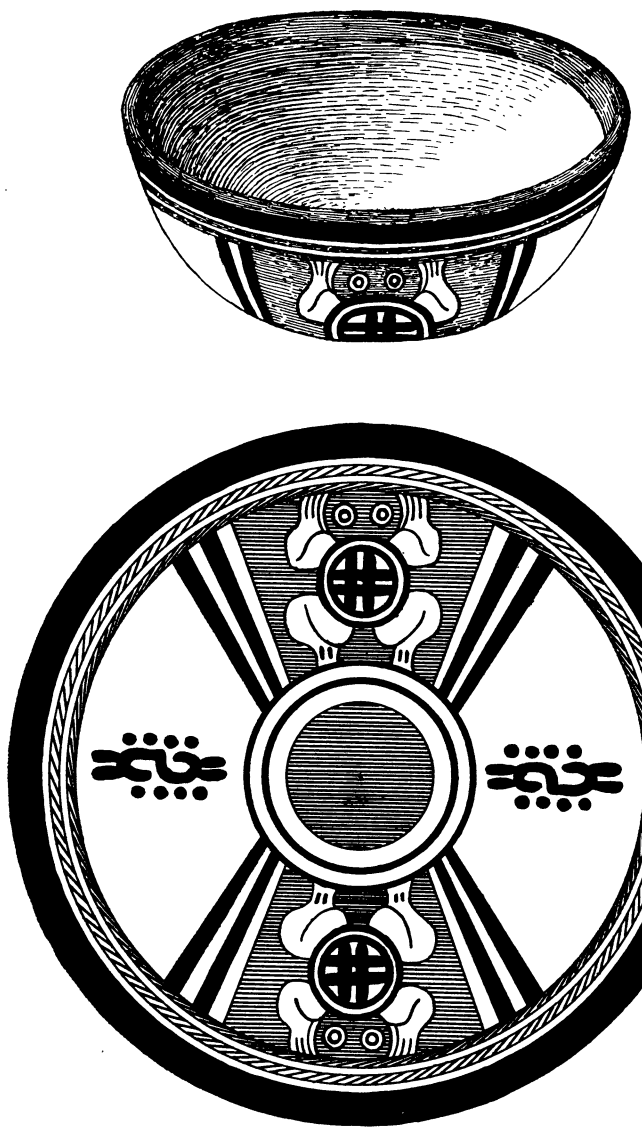

FIG. 29. — DESIGN PAINTED ON BOWL. $\frac{2}{3}$.

ship. The paste, while similar in character, was subjected to a temperature lower than that employed in the firing of the foregoing groups. Although complete specimens that would furnish accurate information respecting shape and size are wanting, the vessels appear to have been unusually large, the middle circumference being in each case the largest. The decorator

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seems to have employed only red and black in his color delineations. The whole surface of the vessel was first treated with a light red slip and

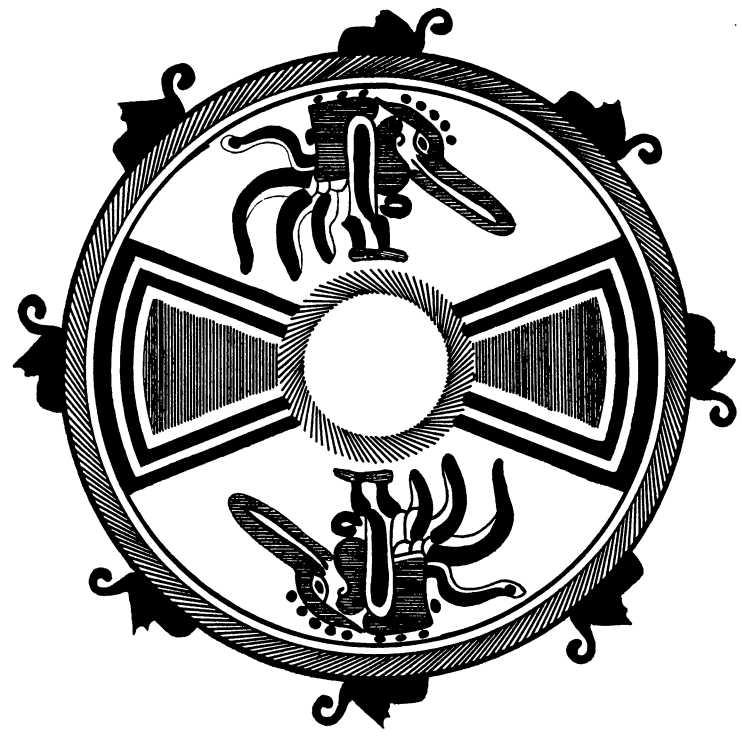

FIG. 30. — DESIGN PAINTED ON A BOWL SIMILAR TO THAT SHOWN IN FIG. 29.

the design drawn upon this in black or in dark red. The surface of the pottery is without polish, and is less highly finished than groups A and B. A figure drawn in black on a fragment of one of these vases is shown on Plate III., *b*.

FIG. 31. — DESIGN PAINTED ON FRAGMENT OF POTTERY VESSEL. $\frac{2}{3}$.

The animal shown in Fig. 31 is taken from a fragment of a vessel, the remainder of the design being entirely lost. The figure is painted in red on a yellow ground.

Fig. 32 represents the decoration on the rim of a vessel of which nothing else remains. A band, an inch and a half in width, was marked out on the surface before firing; a row of glyphs was drawn upon this band, and the intervening spaces were cut out with a sharp instrument, leaving the glyphs standing in relief. Above each glyph another symbol is painted in red. The remainder of the surface is painted white.

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There are fragments of several vases, belonging probably to group B, which had in each case a projecting and slightly flaring rim, around the bottom, on which the vessel stood. The common form of decoration on

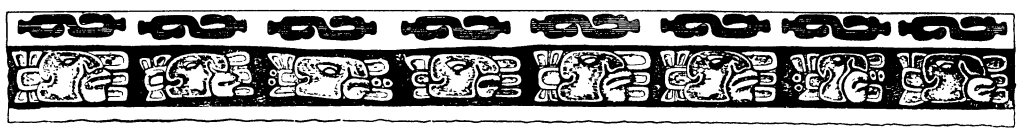

FIG. 32. — DESIGN INCISED AND PAINTED ON RIM OF JAR. ¼.

these rims is illustrated in Fig. 33. The central portion of each of the terraced figures in this design is sunken, the clay having been cut out over this space, before firing, to a depth amounting to less than one quarter the thickness of the rim. The rim is also pierced at a point about the centre of this space. It seems probable that the space was inlaid with a piece of some material cut to the same figure and fastened by means of a rivet or dowel.

Vegetal forms, easily recognized as such, are rare in the decorations of pottery of all classes. On Plate I. Fig. 7, is shown a fragment in which

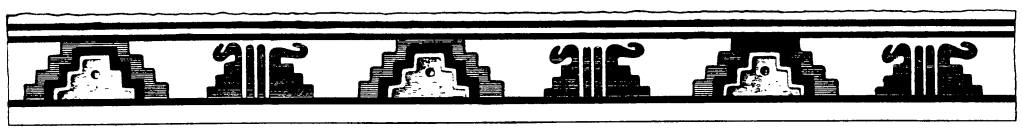

FIG. 33. — DESIGN ON RIM AROUND THE BOTTOM OF A JAR. ¼.

a vine, forming the chief motive, is treated quite naturally. Animal forms and their derivations are conspicuous even in some of the most conventional devices, and geometrical figures and patterns constructed independently of natural forms and not in imitation of natural objects make up a large part of the painted decorations.

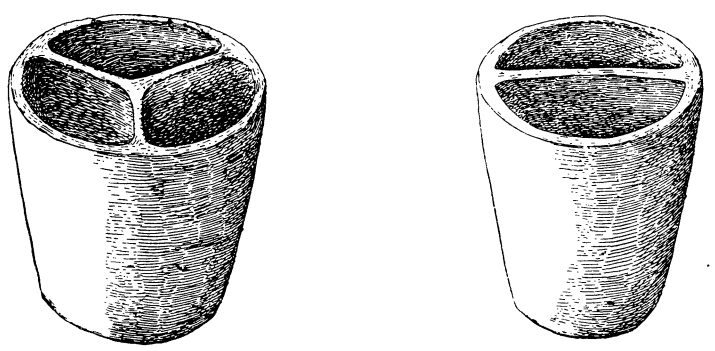

FIG. 34. — CRUCIBLE-LIKE OBJECTS OF CLAY. ⅔.

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SUMMARY AND CONCLUSION.

THE questions relating to the origin of the remains in the Uloa valley and the manner of their occurrence are rather perplexing. While the region under consideration properly includes the entire plain watered by the two converging streams and having an area of less than one thousand square miles, our discussion is practically restricted to a strip comparatively narrow, though of indefinite width, extending along both sides of the Uloa. The specimens that have been described are from the immediate banks of this stream; and while, as has been said, similar objects occur in other parts, this occurrence is, so far as numbers go, not to be compared with the conditions experienced in the more restricted territory; nor does it seem that the more artistic objects of pottery have been found except in the terraces of the Uloa, although jadeite beads and carved pendants, whistles and pottery of the less ornate varieties, have been found in the most remote parts of the region.*

* There are some historical references among the early writers from which one would infer that at the time of the earliest colonization this region was thickly inhabited by Indians, whose chief town, called Naco, was destroyed as early as 1524. The Bishop Las Casas says that between the years 1524–35 there perished in the realm of Naco and Honduras more than two million Indians through the cruelty of the Spaniards, and there did not remain more than two thousand natives in a territory of one hundred square leagues.† It is probable that Las Casas did not have a very definite notion of the extension or character of the country which he vaguely describes as the realm of Naco and Honduras. Bernal Diaz, whose testimony as an eyewitness is of greater value, is unfortunately not explicit in his descriptions.

In 1523 Cortez, having heard false reports of the native wealth of the Honduras or Hibueras, as that part of the Central American mainland is vaguely called in the earliest writings, sent out an expedition from Mexico under command of Cristobal de Oli to found a colony there. Sailing from Vera Cruz, Oli arrived on the north coast and founded a town which he called Triunfo de la Cruz, somewhere near the mouth of the Uloa River. He also conducted an expedition into the interior, against an Indian stronghold called Naco, "a large township," says Bernal Diaz, "which lay in a populous district. It was at this time that Naco was completely destroyed and the whole of the surrounding country laid waste." About the same time reports reached Cortez that Oli had conceived a plan for proclaiming his independence and making himself governor of the new territory; he accordingly sent Francisco de Las Casas to bring back his rebellious officer. Arriving off the site of the new town just founded by Oli, Las Casas lost his ships with all his equipment in a storm, and, being driven ashore in boats, he was taken prisoner, and all his men taken into service by Oli. A short time before this an expedition from Hispaniola, commanded by Gil Gonzales de Avila, had landed on the coast near the mouth of the Rio Dulce and founded a town called San Gil de Buena Vista. Oli, jealous of Avila's influence so near the sphere of his own, sent an expedition against him and made him a prisoner. Thus Oli had two enemies in his power, who, regaining their liberty, plotted his overthrow and forced him to take refuge in the woods, where he was soon caught, and executed in the market-place at Naco. Las Casas and Avila then started back to Mexico by sea.

† "Il est constant que depuis l'année 1524 jusqu'en 1535 il a péri plus de deux millions d'Indiens dans le royaume de Naco y Honduras, et qu'il n'y est resté que deux mille habitans sur une étendue de territoire de cent lieues carrés." Œuvres de Las Casas, Tome Premier. Edited by J. A. Llorente, Paris, 1822.

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Again, no investigations have been made to show whether the remains lie as deep in the parts more remote from the river, or whether they are confined

Cortez in the meantime having heard nothing from Las Casas for eight months after the latter's departure from Mexico, and fearing that some mishap had befallen him, set out with a band of his veteran conquistadores and an army of Mexicans to march by land to the country which he knew as the Honduras. After suffering great hardships he reached the coast at Golfo Dulce, where, after crossing the river which flows into that arm of the sea, he came upon the remnant of Avila's colony of San Gil de Buena Vista, of which the Indians had informed him. Here he learned of the execution of Oli. After making a voyage in a brigantine belonging to the little colony, up the Rio Dulce, during which he discovered Lake Yzabal or Lago Dulce and explored the river Polochic, where he fought a battle with the inhabitants of an Indian township, he set sail to explore the coast to the eastward. Choosing the best harbor that is afforded on all the coast, he named it Puerto Caballos, the same that is now called Puerto Cortez, and founded a town which he named Natividad. At the same time Sandoval, his second in command, marched from Rio Dulce to Naco. Bernal Diaz was among those of the veterans who marched with Sandoval, and he thus alludes to their arrival: "We came to Quinistan and on the following day in the forenoon we arrived at Naco, which at that time was a township of considerable magnitude, but there was not a single inhabitant to be seen, and we quartered ourselves in a large courtyard where Cristobal de Oli was beheaded. In some houses we were fortunate enough to find a good supply of maize, beans, and even some salt, of which latter we stood in great want. In this place we quartered ourselves as comfortably as if we never meant to leave the spot again."

He goes on to say that they lived on friendly terms with the Indians in the neighborhood of Naco. Sandoval had a conference with several of the Caziques, in which they agreed to supply him regularly with provisions. Afterwards he visited several other townships, all of which submitted without resistance, and in time the people of Naco regained confidence and returned to their houses.

At a few leagues from San Pedro Sula there are to be seen to-day the ruins of an Indian township, and on the same site are traces of Spanish occupation in the outlines of the foundations of houses. This place is still called Naco: it corresponds very well with the place of that name mentioned by Diaz as quoted above, and there is every reason to believe that the two are the same. The site contains one of the most extensive groups of earthworks in the whole region. They are completely buried in the jungle and are much disfigured, but they appear to have been of the same character as those discovered east of the Uloa River, which have been described.

Cortez, after founding Truxillo farther along the coast, returned to Mexico by sea, while those of his companions who did not embark with him, under command of Luis Marin, marched from Naco towards the town of Guatemala, then recently founded by Alvarado. On the way thither, they met Alvarado, coming towards the coast in the hope of finding Cortez, and all returned to Mexico by way of Guatemala. In this journey, Luis Marin, in whose company was Bernal Diaz, who recounts their adventures, must have passed near the ruins of Copan.

After the departure of Cortez and his companions from Honduras, the colonies which he had founded were soon strengthened by fresh arrivals from Cuba and from Spain. The interior of the country was explored, rich gold mines were discovered, and soon one of the chief lines of communication between Central America and the outside world lay through the Gulf of Honduras and the country bordering on it. Over this route the product of some of the richest gold mines in New Spain was transported to the north coast, from which the treasure ships put out to sea. Consequently these waters and this part of the mainland early became a favorite hunting-ground for the buccaneers and gentlemen in the service of Elizabeth ; for the protection of the coast, the fortress of Omoa, for a long time the strongest in the New World, was built.

The condition of the native population during these times was of course one of abject slavery. They were driven in swarms to the mines, where they perished by thousands under the cruel treatment of their masters, so that the statement of wholesale depopulation reported by Las Casas is not incredible.

From the account given by Bernal Diaz one would infer that the country watered by the Uloa and Chemilican rivers and their tributaries was at the time of its discovery supporting a large industrial population. The adventurers found extensive maize plantations, and they were supplied with provisions in abundance. The people were assembled in towns, some of which would seem to have been of considerable extent. Of these Naco was without doubt the most important, and was large

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to more superficial strata than is the case along the Uloa. The immediate problem consists, first, in finding an explanation of the various phenomena attending the occurrence of relics in the ground covered by the explorations, and, second, in the interpretation of the historical significance of the relics themselves in their relations to remains from other parts of the country. The object sought in the first of these inquiries is a knowledge of the original location and former condition of the relics, the manner of their present distribution, and the agencies responsible for the changes they have undergone. It has been seen that these objects are found associated with the alluvial beds in a more or less stratified manner to a depth of thirty feet or more. The first explanation that is suggested by the manner of their distribution together with the facts which point to the shifting action of the river consequent upon sudden increase of volume, is that the objects were transported by the current together with the clay, sand, and gravel, and laid down simultaneously with these at successive periods. If this were the case, we should expect the objects to show water-wearing, which they do not. The deposits being laid down by the river at present on its shallow side (see Figs. 1 and 2), contain objects transported from the opposite side, and all these objects show extensive water-wearing; the corners are rounded off, and the colors of painted specimens are destroyed by the combined action of the sand and water in the same way that pebbles are rounded and worn smooth. Those taken from the excavations described in the first part of this report, on the contrary, show in no instance the least indication of the wearing action inseparable from alluvial transportation. The broken edges are sharp, having often the appearance of fresh breaks, and the colored and polished surfaces are unscratched. It follows therefore that the interring must have been accomplished without the agency of the river. In short, the objects must have been put underground in the customary way in connection with burials, but not to the depth at which they are found at present. These burials must have been made during successive periods of occupation, separated by a series of inundations each of which raised the general level of the

enough to be described by Bernal Diaz, who was accustomed to large Indian cities, as "a township of considerable magnitude." The historian mentions "houses," but says nothing of their construction. They must have been of some pretensions, however, since it was possible for Sandoval and his companions to quarter themselves "as comfortably as if we never intended to leave the spot again." The inhabitants were peaceable, and would doubtless have received Sandoval in a friendly manner had not the outrages of Oli already given them reason to look upon the Spaniards with fear and distrust.

Whatever the condition of these people may have been at the time of their first contact with Europeans, they quickly disappeared under Spanish oppression; and to-day the only pure-blooded Indians to be found on the banks of the Uloa River are wild Xicaques who have wandered down from the mountains of Yoro, where that tribe remained in comparative security and isolation through the period of Spanish rule. The people whom the Spaniards found in the valley of the Uloa and the adjoining region must have constructed the earthworks and other objects whose remains are found upon the surface to-day, and these earthworks mark the sites of their towns, all of which were destroyed by the earliest colonists.

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ground several feet by the deposition of detritus from the mountains. Each of these catastrophes would be followed by a rapid growth of vegetation, and the population would return to the neighborhood of the river, that was their source of life, where they may have remained undisturbed for many generations. Sometimes the site of the later burying-place was directly over that of the old, either by design or accident, and thus we have in places a succession of layers, representing the burials that correspond to separate periods. More generally, however, the new site chosen was different from the old; and consequently in certain localities remains are found in one layer only, which may be at any depth, from the level of the water to within five or six feet from the surface. The excavations that have been described were made at points where the number of layers containing relics was greatest according to observations on the face of the bank. The burials were made without any form of tomb, the body together with the associated objects being simply deposited in the ground and covered with earth. The finding of different pieces of the same vessel separated by several feet, suggests that the vessels were sometimes broken before the interment was made, while most of those that were buried entire were subsequently crushed by the weight of the superimposed strata, which increased in thickness at every inundation. Perhaps the most puzzling circumstance is that so many of the objects are represented by portions only, isolated fragments of all sizes being continually encountered in the excavations. Moreover it was not possible to define individual burials or distinguish the corresponding sets of associated objects; there was a certain promiscuity in the manner of their distribution that seems to indicate that the same ground was utilized repeatedly, and that the earlier interments in any particular burying-place were disturbed and their arrangement broken up by those which came later. It is probable also that many of the isolated fragments which are found distributed through the strata were accidentally buried. The distribution of potsherds in the form of refuse through the surface soil is a necessary outcome of continued occupation by communities in which the product of the potter's art was extensively used. Again, if these communities were temporarily obliterated by flood, as has been argued, such objects of stone and pottery as were in use at the time of the catastrophe may have been covered up without the transportation of which they would have retained evidence. The combination of circumstances here detailed seems to furnish the only solution of the problem that is at all satisfactory.

The human remains, although of the most meagre description, when taken in connection with the pottery with which they were found associated, confirm the existence of burials. They consist of crumbling fragments of bone occurring in the same strata with the objects of pottery; and while they furnish reasonable evidence of burial-places, they are too minute to supply any information respecting the form of the burials or the relative

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position of the objects associated with them. The data obtained give only a very general idea of the mode of sepulture practised in this region. The objects and utensils were probably placed beside the dead or thrown in the grave as it was being filled up. The fact that no tomb was built and no stones were placed about the body, shows that the people were less careful of the preservation of the dead than most of the peoples of Central America. The almost total disappearance of the skeletons is not more than is to be expected in a region of excessive moisture and in the absence of protection. Even in the well-built graves of Chiriqui, according to various testimonies, human remains are almost entirely absent. The cemeteries were probably located in the vicinity of towns or villages, but absolutely no trace of dwellings was discovered. The houses were constructed of perishable material, such as wood or adobes.

The second inquiry has reference to the historical significance of the art relics. There is no evidence here of different periods of culture or separate epochs marked by advancement of the arts or by radical changes of any description. What we find is evidence pointing to an extended period of constant culture during which certain arts which flourished in this region manifest a development equal to that attained by the highest civilizations of Central America. There is no evidence of the use of metals, and architectural remains are entirely wanting. So far as we are able to judge from their remains, it is in the potter's art — the manipulation of clay — that the people of this region excelled, and it was this art that was most assiduously cultivated. In drawing any such conclusion as this, however, it must be borne in mind that the class of objects dealt with has the advantage of outlasting all the other products of human skill. What degree of perfection was possessed in the manufacture of textile fabrics we have no means of knowing. In certain forms of stone-cutting, the traces, although meagre, show considerable proficiency, while in the matter of color decorations there is abundant evidence of a skill equal to that attained by the people of any of the neighboring provinces. The great body of art relics are in clay; and while in some respects they are closely related to the art of neighboring provinces, in other respects they possess a distinct individuality. It is surprising to find in a region of such small extent such a variety of forms and types as is exhibited by these relics from the Uloa valley. The vases alone represent a wide range both in form and in decorative motives. This great variety of character looks towards an admixture of races, or at least a diversity of external influence; but whatever combination of minor elements may have entered into the composition of society in this region, or whatever external agencies may have contributed to the production of the objects in question as representing its art and industry, it is evident that the dominating influence was Maya. If not a branch of the Mayas, the people, with whose remains on the Uloa River we

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are now brought in contact, were in close relations with some portion of that race, whose customs they adopted and by whose culture they were enriched. They were, in fact, subject to the Maya civilization, and the surviving products of their art and industry pertain largely to that civilization. The absence of architectural remains, the most familiar and remarkable feature of Maya culture in other regions, does not of necessity militate against the proposition just put forward, for in any given region the presence of suitable material in an accessible form is a necessary condition to the development of sculpture or the production of enduring monuments of architecture such as are found at Copan and in the ruined cities of Yucatan and Chiapas. But for the proximity of trachyte beds furnishing a convenient workable material, the elaborate architecture of Copan could never have been developed. In the valley of the Uloa there is no available supply of stone that could be manipulated in accordance with the requirements of an architecture like that of Copan, by a people with no better tools than flint chisels. Whatever the inhabitants of the region may have accomplished in the art of building, the material used was less durable than stone, and probably consisted of adobe and wood.

Art in clay, which in the ancient centres of Maya culture occupies a subordinate position, in this region takes the place of art in stone almost entirely, and accordingly the former is given a wider application than elsewhere. Although here, as elsewhere, the vessel represents the first idea and the leading feature of ceramic art, images, musical instruments, seals, and articles of personal adornment occupy a very important place, and there is a conspicuous ambition to model life forms — natural or mythological — apart from objects of utility. The attempt to model the human form is worthy of especial mention, and is more meritorious than any similar attempt of which traces have survived in the neighboring provinces.

It is among the pottery vessels that the Maya affinities are most prominent. Of the number represented, either by entire specimens or by fragments, not only do the greater part exhibit technical qualities identical with the pottery from Copan, but especially in the conventional use of certain decorative motives and in the employment of a graphic system common to that of the codices and to the sculptured monuments of Maya, these affinities are very manifest. The same relationship makes itself felt, although in a less striking manner, in the other classes of objects. It is not claimed that this relationship, however intimate, covers the whole ground, or that there is any homogeneity throughout the whole body of ceramic products, as if it were the work of a homogeneous people and represented a culture developed from within. On the contrary, there is in the tendency toward diversity of type strong evidence of an admixture of races, or of extensive importations derived from a variety of sources; but the incomplete character of the available data would make an analysis

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of these mixed conditions very difficult. The affinity already spoken of is the only one that is definite and obvious. The whistles and musical instruments, while they resemble in some respects similar instruments from the graves of Chiriqui, show a much greater perfection of form and ornament, and possess a strong individuality. While to a superficial observer none of these instruments are more than whistles or mere toys, an examination shows that many of them possess powers which give them a more pretentious character. Very simple in construction, they answer within certain limits to the requirements of real musical instruments, and although the mutilated condition of these instruments prevents a satisfactory determination of their actual capacity, they serve to show that music in a crude form was cultivated among the people to whom they pertain. There is no proof of the existence of any fixed scale of intervals, but the condition of the instruments makes it impossible to speak with certainty on this point. While all these instruments are limited in musical capacity, those of the more pretentious class, if operated by skilled performers, are capable of producing pleasing melodies. Moreover there is among them a certain correspondence in construction, in the number of tones, and in the succession of intervals that indicates a tendency to conform to more or less definite standards. In the hands of modern musicians these instruments, played in unison, can be made to produce harmony, but it would be rash to say that their owners had any knowledge of this, or that they made any systematic use of their limited musical capacity. The mechanism most commonly employed is that of the modern flageolet, as shown in Fig. 20. While some of these are simple whistles, giving one or two notes only, the great majority are provided with two holes equally distant from the mouthpiece; these holes are always exactly equal in size and consequently give the same note. Three notes is the full capacity of these instruments, one with both stops closed, another with either one open, and a third with both open. In the most pretentious class the mechanism by which the sound is produced is a plain opening or passage communicating with the air-chamber, which is provided with three stops capable of producing five distinct tones. Two of these stops are always placed at equal distances from the mouthpiece, and being equal in size, when either one is alone open, the same note is produced. Plate IX., *o*, *p*, *q*, are good examples of this type.

The stamps or seals resemble very closely the well-known Mexican article, and still more closely specimens from Venezuela.

Obvious and striking as are some of the extraneous relationships, and particularly that which connects the art and culture of this region with that which distinguishes the people of the great Maya stock, not less remarkable are the traits that distinguish a considerable portion of the art relics of this region from those of all other localities and give a marked individuality to certain groups of objects. The stone vases, represented by fugitive

132

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specimens and constituting almost the only evidence of art in stone, form a unique and interesting group, with marked individual characteristics; and the same is true of a considerable portion of the ceramic products. It is singular that tools of all sorts are almost absent, and implements of war entirely so.

With regard to the surface remains in the Uloa valley, it can only be said that they appear to have no distinct connection with the underground relics. The few objects of art that have been observed among these earthworks bear no apparent relation to the deeper and therefore older material. The carving of the one idol that came under observation is extremely crude, and has more resemblance to Nicaraguan sculptures than those of any other section with which we are familiar. Although there is no definite testimony as to age, these surface remains probably belong to the period corresponding to the earliest Spanish colonization; and whatever the origin of the people to whom they are to be attributed, they did not possess the degree of culture that distinguished their predecessors in the same region.

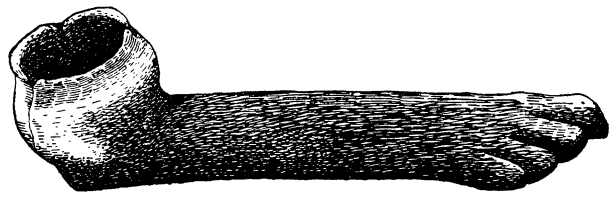

FIG. 35. — TOBACCO PIPE OF CLAY. $\frac{2}{3}$.

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LIST OF PLATES.

PLATE I.

Samples of fragments of painted pottery illustrating groups A and B. Nos. 4, 7, 10, 11, 12, 15, 16 present characteristics which belong to group B; the others seem to represent vases belonging to group A. Objects on the plate are reduced ½.
From excavations on the banks of the Uloa.

PLATE II.

Map of the lower watersheds of the Uloa and Chemilicon Rivers. The sites of the excavations mentioned in this report are indicated by the figures 1, 2, 3, and 4 enclosed in circles.

PLATE III.

a. Design painted on vase, three colors.
b. Design on a fragment of a large vase, two colors.
From excavations on the banks of the Uloa.

PLATE IV.

Decoration on the surface of a vase, group A. Design in three colors.
From excavation on the banks of the Uloa.

PLATE V.

Decoration on the surface of a vase, group A. Design in three colors.
From excavation on the banks of the Uloa.

PLATE VI.

FIG. 1. View on the Uloa River showing site of Excavation 3, looking down stream.
FIG. 2. Bank of the Uloa River at the site of Excavation 4. Excavation begun.

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PLATE VII.

Pottery vessels from the banks of the Uloa River, showing variety of forms.

a and *b*. Opposite sides of the same vessel; it is painted red.
c. Dark gray ware, human features.
d. Nicaragua type, light red slip.
e. Light red slip.
f. Body and top of neck painted red. Incised decorations on neck.
g. Dark gray ware, plain surface.
h. Dark brown ware, surface polished.
i. Dark brown slip, incised decorations — horizontal and vertical lines.
j. Light gray ware, plain surface.
k. Black ware, plain surface; has suggestion of rudimentary animal features on opposite sides.
l. Tripod form, dark gray, plain surface.
m. Lower half painted red, upper half painted white with red figures.
n. Light gray ware, plain surface.
o. Dark gray ware, incised decorations on upper part.
p. Dark gray ware, impressed decorations.
q. Dark red slip.
(*n*, *o*, *p*, and *q* are characterized by vertical spouts. Specimens from Mexico have vertical spouts attached at the upper end to the neck of the vessel, and serving also for handle.)
r. Dark gray ware, plain rough surface.
s. Light gray ware, plain surface.
t. Dark brown ware, plain surface.
u. Brown slip, polished, animal features.

PLATE VIII.

Portions of terra-cotta figures and masks. *a* to *i* inclusive appear to have been portions of whistles or musical instruments; the remainder seem to have had no connection with objects of utility.

From excavations on the banks of the Uloa.

PLATE IX.

a. Whistle, human form, one vent, two notes.
b. Whistle, monkey, one vent, two notes.
c. Whistle, bird form, one vent, two notes.
d. Whistle, bird form, single note.
e. Whistle, quadruped, single note (broken).
f. Musical instrument, human form, two vents, equal in size, equally distant from mouthpiece; three notes.
g. Musical instrument, human form, two vents equal in size and equally distant from mouthpiece; three notes.
h. Whistle or musical instrument, human features (broken).
i. Double whistle, frogs mating.

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j. Double whistle, frog form.
k. Musical instrument, human form, two vents equal in size and equally distant from mouthpiece; three notes.
l. Hollow image, human figure.
m. Whistle, turtle form, one vent, two notes.
n. Hollow image, nursing mother.
o. Musical instrument, monkey form with extension at back, provided with a plain opening at the top for blowing; three vents, the two lower ones on opposite sides are equal in size and equally distant from mouthpiece; capacity five notes.
p. Musical instrument, same type as last, animal form, three vents; capacity five notes.
q. Musical instrument, same type as last two, bird form, three vents; capacity five notes.
r. Musical instrument, human form, two vents equal in size and equally distant from mouthpiece; three notes.
s. Musical instrument, human form, two vents, equal in size and equally distant from mouthpiece; three notes.
t. Hollow image, human figure.
u. Whistle or musical instrument (broken).
v. Musical instrument, human form, two vents equal in size and equally distant from mouthpiece; three notes.
w. Musical instrument, human form, two vents equal in size and equally distant from mouthpiece; three notes.

From excavations on the banks of the Uloa.

PLATE X.

Portions of terra-cotta statuettes.
From excavations on the banks of the Uloa.

PLATE XI.

Terra-cotta stamps.
From excavations on the banks of the Uloa.

PLATE XII.

FIG. 1. *a*, *b*, *c*, terra-cotta masks, probably personal ornaments. They are perforated around the edges at the back, $\frac{2}{3}$ size. *d*, double paint-holder, $\frac{2}{3}$ size; *e*, *f*, calcite vases, $\frac{1}{2}$ size; *g*, fragment of a terra-cotta model of turkey, $\frac{1}{2}$ size; *h*, cup in shape of human head, $\frac{2}{3}$ size.
FIG. 2. View of waterfall and pool in the Quebrada Encantada (see page 14).
FIG. 3. Excavation at ruins near Quebrada Encantada.

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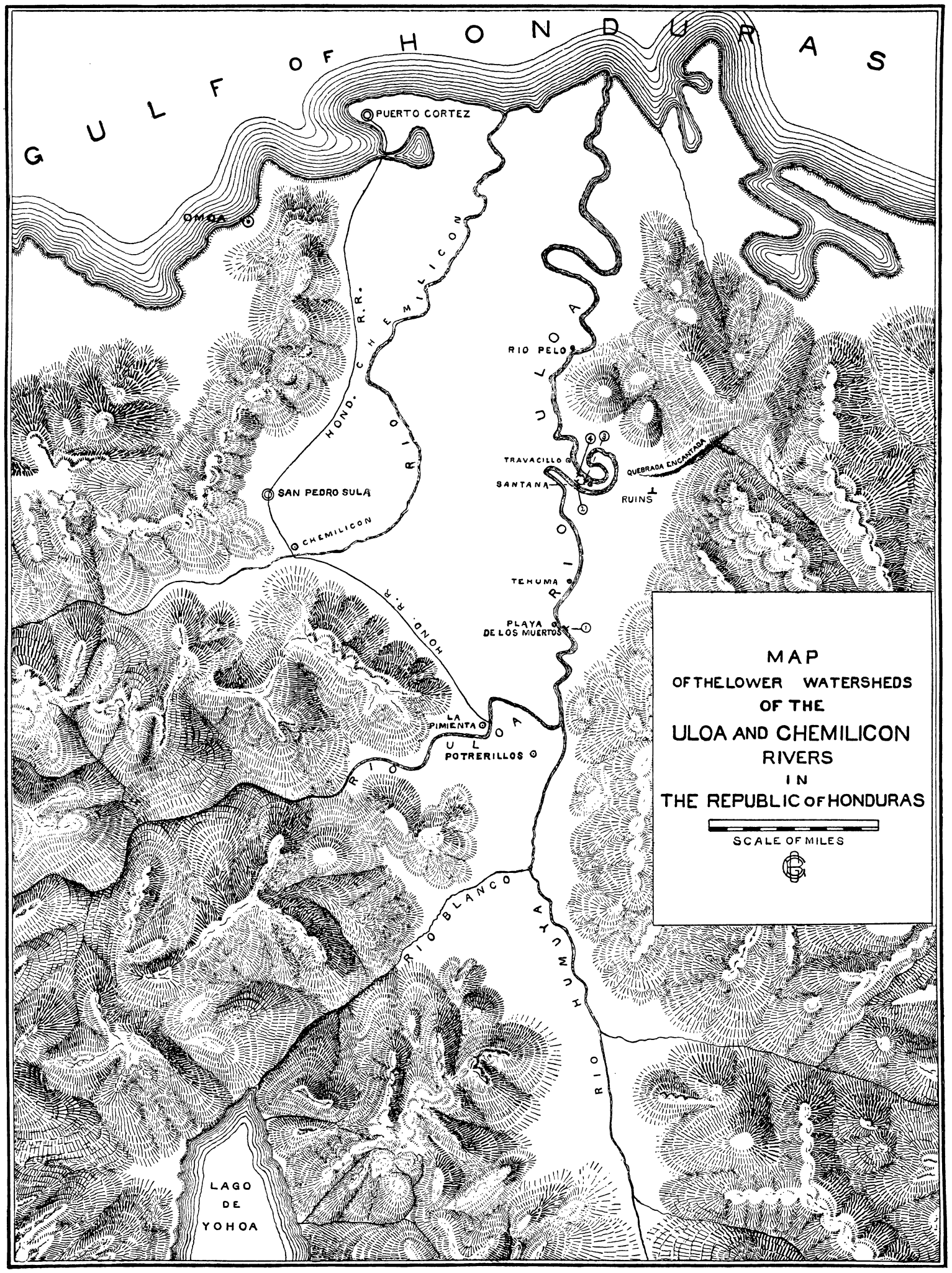

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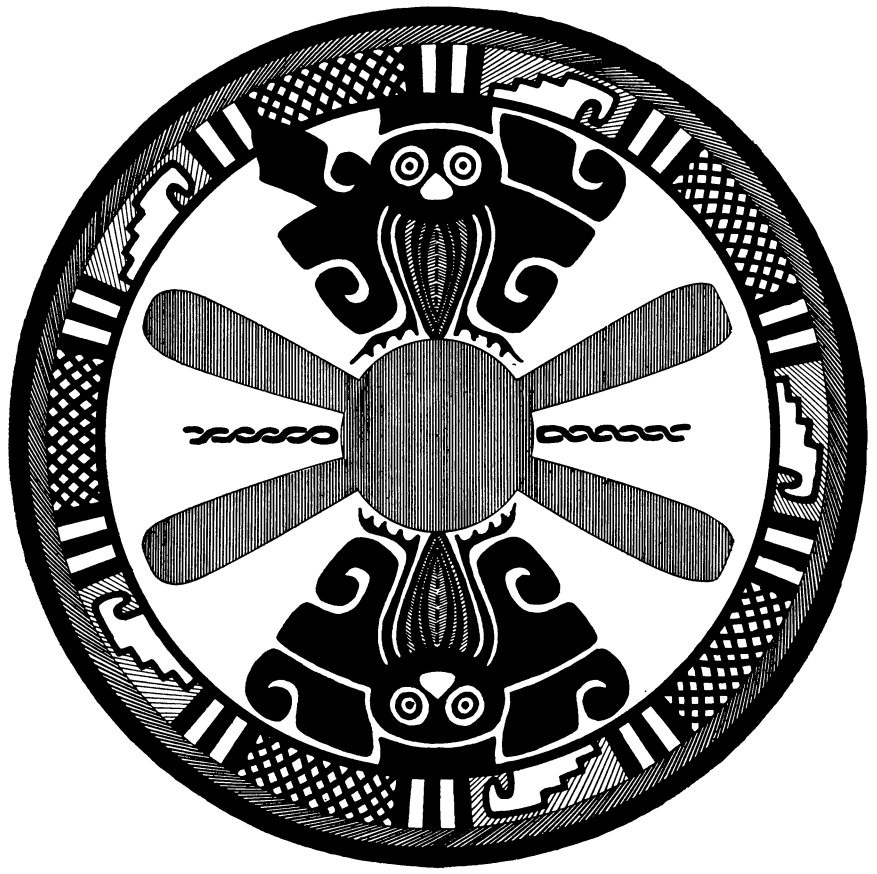

a. DESIGN PAINTED ON VASE. THREE COLORS. ½. Page 27.

b. DESIGN ON A FRAGMENT OF A LARGE VASE. GROUP C. TWO COLORS. ⅔. Page 32.

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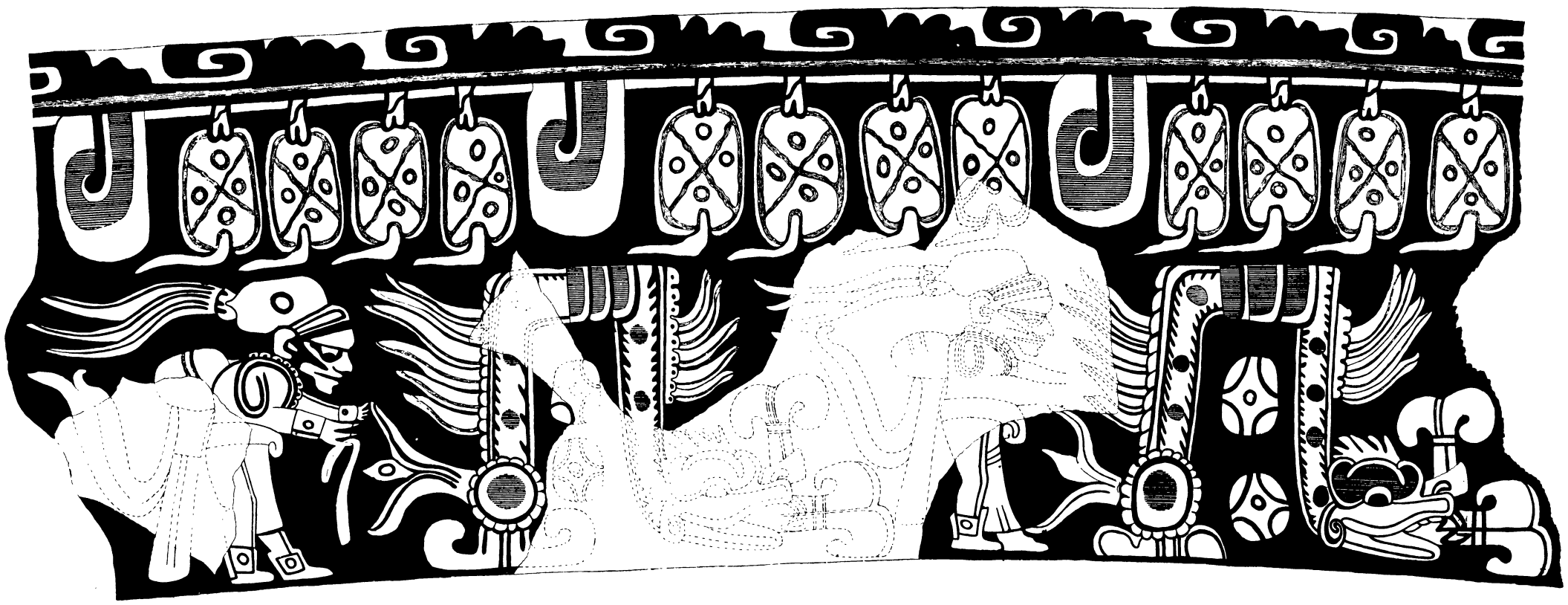

DECORATION ON SURFACE OF VASE. GROUP A. DESIGN IN THREE COLORS. ½. Page 27.

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DECORATION ON SURFACE OF VASE. GROUP A. DESIGN IN THREE COLORS. ½. Page 29.

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FIG. 1. ULOA RIVER. EXCAVATION 3 AT THE LEFT.

FIG. 2. BANKS OF THE ULOA RIVER. EXCAVATION 4.

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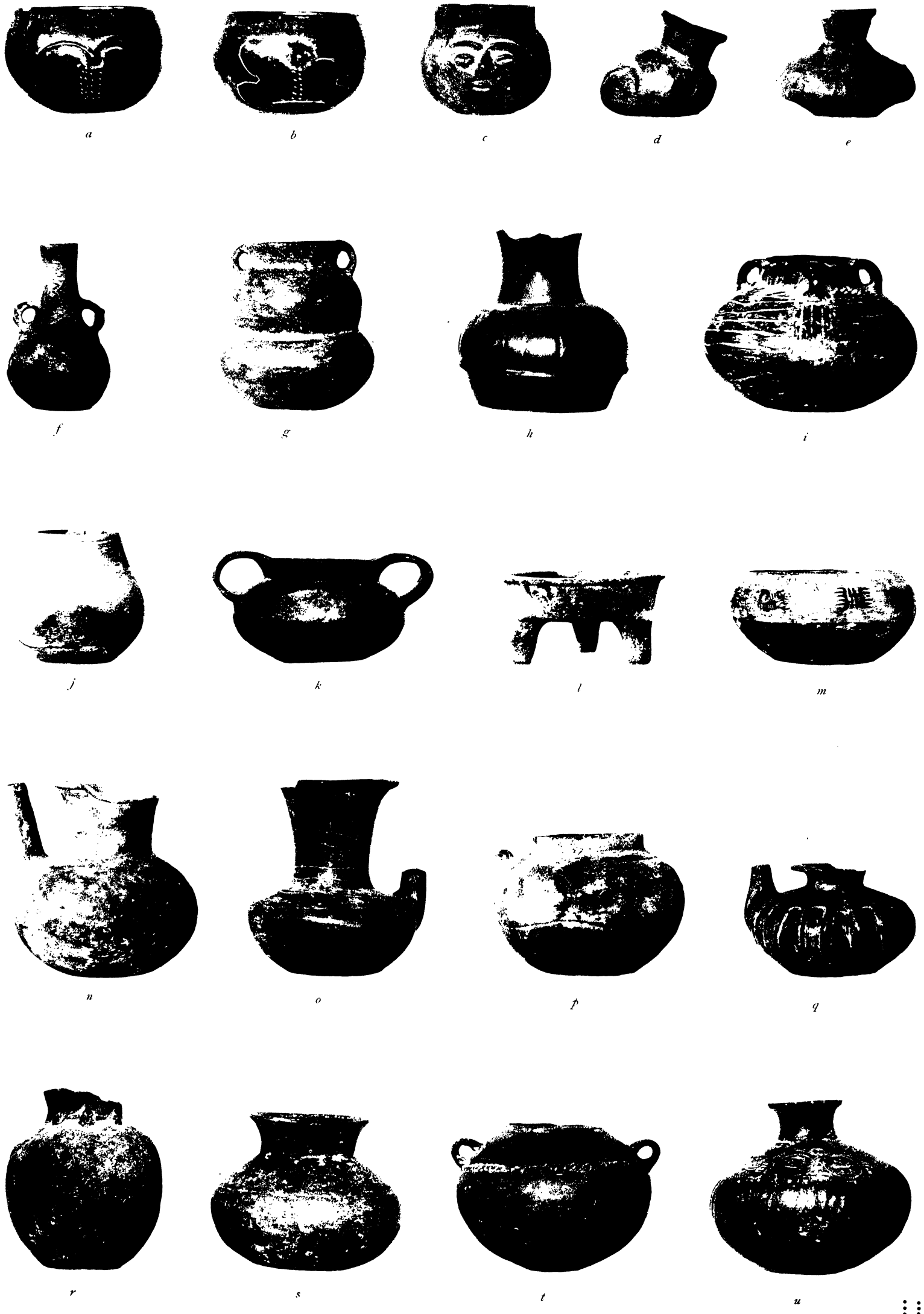

a *b* *c* *d* *e*

f *g* *h* *i*

j *k* *l* *m*

n *o* *p* *q*

r *s* *t* *u*

POTTERY FROM BANKS OF THE ULOA RIVER, SHOWING VARIETY OF FORMS. (About $\frac{1}{3}$.)

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PORTIONS OF TERRA COTTA FIGURES AND MASKS. BANKS OF THE ULOA. (About ⅛.)

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WHISTLES AND IMAGES. BANKS OF THE ULOA. (About ½.)

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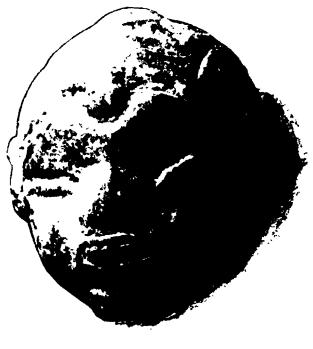
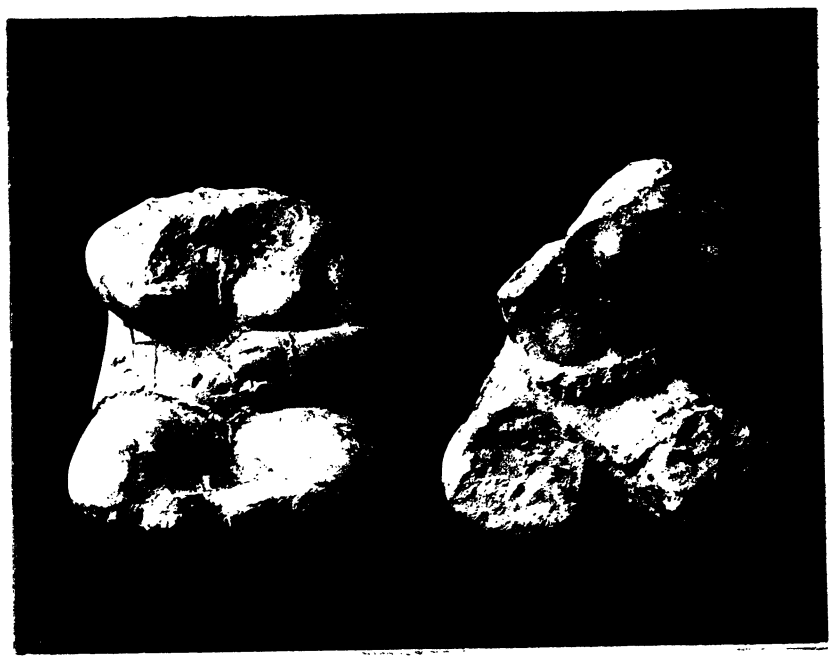


a

b

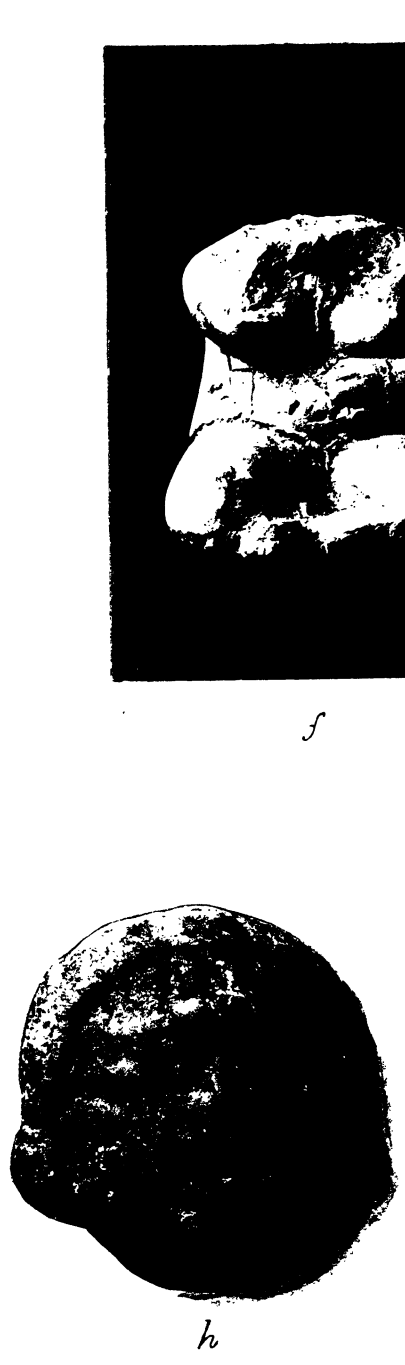
c

d

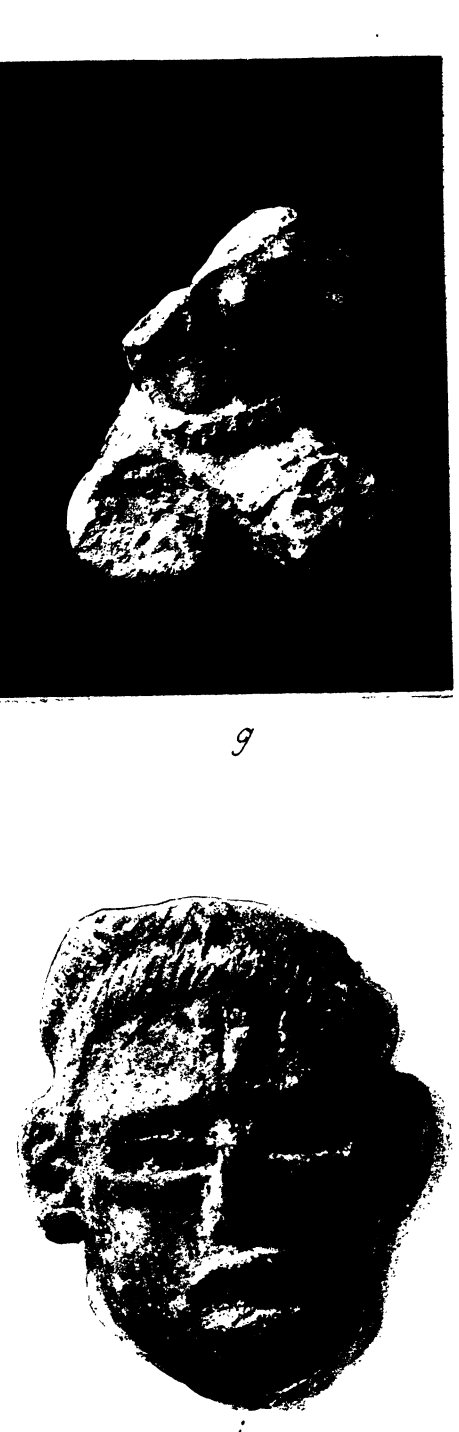


f *g*

e



h



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PORTIONS OF TERRA COTTA STATUETTES. BANKS OF THE ULOA. (About ¾.)

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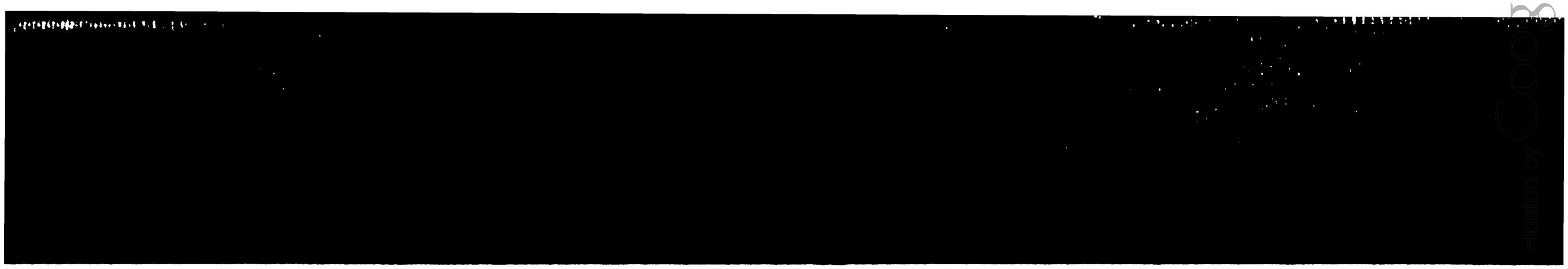

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